CENTRAL AIR CONDITIONERS

R410A

HEAT RECOVERY D.C INVERTER MULTI VRF SERVICE MANUAL

T1/R410A/50Hz
(GC201103)

GREE ELECTRIC APPLIANCES INC.OF ZHUHAI

CONTENTS

PRODUCT 2
1 MODELS LIST 2
1.1 Outdoor Unit 2
1.2 Mode Exchanger 4
1.3 Indoor Units 4
2 NOMENCLATURES 7
2.1 Nomenclature of outdoor unit 7
2.2 Nomenclature of indoor unit 8
3 FUNCTION 8
4 PRODUCT DATA 9
4.1 Product data of outdoor units 9
4.2 Product data of indoor units 19
4.3 Operation Range 33
5 PIPING DIAGRAM 33
5.1Piping diagram of GMV-Pdhm224W/Na-M,GMV-Pdhm280W/Na-M: 33
5.2 Piping diagram of GMV-Pdhm335W/Na-M, GMV-Pdhm400W/Na-M, GMV-Pdhm450W/Na-M: .. 36
CONTROL 38
1 THE CONTROL MODE OF INVERTER MULTI VRF 38
2 OPERATION FLOWCHART 39
2.1 The System Starting Operation 39
2.2 Cooling/Dry Operation 39
2.3 Heating Operation 40
2.4 Heat Recovery Operation 40
3 MAIN LOGIC 40
3.1 Control Function of Outdoor Unit 40
4 WIRELESS REMOTE CONTROLLER 51
5 WIRED REMOTE CONTROLLER 53
5.1 Operation and Display View 53
5.2 Dimension 54
5.3 Installation 54
6 REGION CONTROLLER 55
6.1 Function 55
6.2 Operation View 56
6.3 Display View 57
6.4 Connection Between Controller and Unit 59
7 CENTRALIZED CONTROLLER (OLD) 59
7.1 Function 59
7.2 Operation View 60
7.3 Display View 61
7.4 Connection between Controller and Unit 62
7.5 Case Study 62
8 CENTRALIZED CONTROLLER (NEW) 72

8.1 Function 72
8.2 Communication network 72
8.3 LCD display 73
8.4 Silk screen 73
8.5 Control method 74
8.6 Installation and Debugging 74
8.7 Attachment 79
9 MONITORING SOFTWARE 80
9.1 Function 80
9.2 Connection Between the Computer and the Unit 81
9.3 Hardware 82
INSTALLATION 89
1 PRECAUTIONS FOR INSTALLATION 89
2 FLOW CHART OF INSTALLATION 91
3 INSTALLATION OF OUTDOOR UNIT 94
3.1 Hoisting of Unit 94
3.2 Selection of Installation Site 94
3.3 Outline Dimension Data and Installation Dimension Data 95
3.5 Take Monsoons and Snow into Consideration 98
4 INSTALLATION OF INDOOR UNIT 100
4.1 Selection of installation site 100
4.2 Installation space requirements 103
4.3 Dimensions Data 104
5 INSTALLATION OF MODE EXCHANGER 109
5.1 Selection of installation site 109
5.2 Dimension 110
5.3 Cautions for Installation 110
6 INSTALLATION REQUIREMENTS OF REFRIGERANT PIPING 112
MAINTENANCE 122
1 TROUBLESHOOTING 122
2 RESISTANCES OF COMMON TEMPERATURE SENSING BULBS 144
2.1. 15 kΩ 144
2.2. 20kΩ 147
2.3. 50kΩ 149
3 FEATURES OF HIGH/LOW PRESSURE SENSORS 151
3.1. Features of High Pressure Sensors (R410a) 151
3.2. Features of Low Pressure Sensors (R410a) 152
4 EMERGENCY MEASURES 153
5 REPLACEMENT OF MAIN COMPONENTS 153
5.1. Refrigerant Recovery Control during After-sales Maintenance 153
5.2.Disassembly And Assembly Procedure Of Main Partsoor Unit 156
5.3 Indoor unit 165
5.3.Exploded Views And Part List 170

PRODUCT

PRODUCT

1 MODELS LIST

1.1 Outdoor Unit

Model	Product Code	Capacity Cooling	Capacity Heating	Power Supply	Ref.	Appearance
		kW	kW			
GMV-Pdhm224W/Na-M	CN851W0020	22.4	25.0	380-415V 3Ph-50Hz	R410A	
GMV-Pdhm280W/Na-M	CN851W9010	28.0	31.5			
GMV-Pdhm335W/Na-M	CN851W0030	33.5	37.5			
GMV-Pdhm400W/Na-M	CN851W0040	40.0	45.0			
GMV-Pdhm450W/Na-M	CN851W0050	45.0	50.0			

Appearance	Model		GMV-Pdhm***W/Na-M				
			224	280	335	400	450
	GMV-Pdhm***W/Na-M	224	⬡				
		280		⬡			
		335			⬡		
		400				⬡	
		450					⬡
	GMV-Pdhm***W2/Na-M	504	⬡	⬡			
		560		⬡			

Appearance	Model		GMV-Pdhm***W/Na-M				
			224	280	335	400	450
		800				⬡	

Notes!

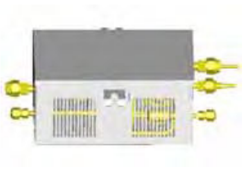
①. The rated cooling capacity data is measured under the following work condition: Indoor Temperature as 27°C DB,19°CWB; Outdoor Temperature as 35°C DB, 24°CWB.

②. The rated heating capacity data is measured under the following work condition: Indoor Temperature as 20°C DB,15°C WB; Outdoor Temperature as 7°C DB, 6°CWB.

③. The filling amount of R410A operating fluid in the table is specified without considering perpendicular throw and pipe connection, so it is required to fill additional refrigerant depending on actual circumstances when the installation is carried out.

The data in the tables is subject to change so the data on the nameplate shall govern.

1.2 Mode Exchanger

Model	Usage Range	Appearance
CHS22	22,25,28	
CHS36	32,36,40,45,50	
CHS71	56,63,71,80	
CHS90	90,100,112,125,140	
CHS224	224,280	

1.3 Indoor Units

1.3.1 Duct type indoor uint

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV-Rh22P/Na-K	EM800N0541	2.2	2.5	220~240V-1Ph-50Hz	R410A	
GMV-Rh25P/Na-K	EM800N0601	2.5	3.0			
GMV-Rh28P/Na-K	EM800N0631	2.8	3.2			
GMV-Rh32P/Na-K	CM800N1000	3.2	3.6			
GMV-Rh36P/Na-K	EM800N0621	3.6	4.0			
GMV-Rh40P/Na-K	CM800N1010	4.0	4.5			
GMV-Rh45P/Na-K	EM800N0591	4.5	5.0			
GMV-Rh50P/Na-K	EM800N0611	5.0	5.8			
GMV-Rh56P/Na-K	EM800N0551	5.6	6.3			
GMV-Rh63P/Na-K	CM800N1020	6.3	7.0			
GMV-Rh71P/Na-K	EM800N0581	7.1	8.0			
GMV-Rh80P/Na-K	EM800N0571	8.0	8.8			
GMV-Rh90P/Na-K	EM800N0561	9.0	10.0			
GMV-Rh100P/Na-K	CM800N1040	10.0	11.0			
GMV-Rh112P/Na-K	EM800N0641	11.2	12.5			
GMV-Rh125P/Na-K	CM800N1030	12.5	13.5			

1.3.2Concealed Duck High ESP Type indoor uint (Water Pump Integrated)

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV-Rh22PS/NaB-K	CM800N1050	2.2	2.5	220~240V-1Ph-50Hz	R410A	
GMV-Rh28PS/NaB-K	CM800N1060	2.8	3.2			
GMV-Rh36PS/NaB-K	CM800N1070	3.6	4.0			
GMV-Rh45PS/NaB-K	CM800N1080	4.5	5.0			
GMV-Rh56PS/NaB-K	CM800N1090	5.6	6.3			
GMV-Rh71PS/NaB-K	CM800N1100	7.1	8.0			
GMV-Rh90PS/NaB-K	CM800N1110	9.0	10.0			
GMV-Rh112PS/NaB-K	CM800N1120	11.2	12.5			
GMV-Rh140PS/NaB-K	CM800N1130	14.0	15.0			

1.3.3Concealed Duck High ESP Type indoor uint (No Water Pump Integrated)

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV-Rh22P/NaB-K	CM800N1140	2.2	2.5	220~240V-1Ph-50Hz	R410A	
GMV-Rh28P/NaB-K	CM800N1150	2.8	3.2			
GMV-Rh36P/NaB-K	CM800N1160	3.6	4.0			
GMV-Rh45P/NaB-K	CM800N1170	4.5	5.0			
GMV-Rh56P/NaB-K	CM800N1180	5.6	6.3			
GMV-Rh71P/NaB-K	CM800N1190	7.1	8.0			
GMV-Rh90P/NaB-K	CM800N1200	9.0	10.0			
GMV-Rh112P/NaB-K	CM800N1210	11.2	12.5			
GMV-Rh140P/NaB-K	CM800N1220	14.0	15.0			
GMV-Rh224P/NaB-M	CM800N1240	22.4	25.0	380~415V-1Ph-50Hz	R410A	
GMV-Rh280P/NaB-M	CM800N1230	28.0	31.0			

1.3.4 Cassette type indoor uint

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV-Rh28T/Na-K	CM501N0131	2.8	3.2	220~240V-1Ph-50Hz	R410A	
GMV-Rh36T/Na-K	CM501N0151	3.6	4.0			
GMV-Rh45T/Na-K	CM501N0111	4.5	5.0			
GMV-Rh50T/Na-K	CM501N0161	5.0	5.8			
GMV-Rh56T/Na-K	CM501N0171	5.6	6.3			
GMV-Rh63T/Na-K	CM501N0181	6.3	7.0			
GMV-Rh71T/Na-K	CM501N0121	7.1	8.0			
GMV-Rh80T/Na-K	CM501N0191	8.0	8.8			
GMV-Rh90T/Na-K	CM501N0201	9.0	10.0			
GMV-Rh100T/Na-K	CM501N0211	10.0	11.0			
GMV-Rh112T/Na-K	CM501N0141	11.2	12.5			
GMV-Rh125T/Na-K	CM501N0221	12.5	13.5			
GMV-Rh22T/NaA-K	CM501N0260	2.2	2.5			
GMV-Rh28T/NaA-K	CM501N0250	2.8	3.2			
GMV-Rh36T/NaA-K	CM501N0240	3.6	4.0			
GMV-Rh45T/NaA-K	CM501N0230	4.5	5.0			

1.3.5 Wall mounted type indoor uint

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV- Rh22G/Na-K	CM100N0090	2.2	2.5	220~240V-1Ph-50Hz	R410A	
GMV- Rh28G/Na-K	CM100N0100	2.8	3.2			
GMV- Rh36G/Na-K	CM100N0110	3.6	4.0			
GMV-Rh45G/Na-K	CM100N0120	4.5	5.0			
GMV-Rh50G/Na-K	CM100N0130	5.0	5.8			
GMV-Rh56G/Na-K	CM100N0140	5.6	6.3			
GMV-Rh71G/Na-K	CM100N0150	7.1	8.0			
GMV-Rh80G/Na-K	CM100N0160	8.0	9.0			

1.3.6 Floor ceiling type

Model	Product Code	Capacity		Power Supply	Ref.	Appearance
		Cooling (kW)	Heating (kW)			
GMV-Rh28Zd/Na-K	CM600N0100	2.8	3.2	220~240V-1Ph-50Hz	R410A	
GMV-Rh36Zd/Na-K	CM600N0110	3.6	4.0			
GMV-Rh50Zd/Na-K	CM600N0120	5.0	5.8			
GMV-Rh71Zd/Na-K	CM600N0130	7.1	8.0			
GMV-Rh90Zd/Na-K	CM600N0090	9.0	10.0			
GMV-Rh112Zd/Na-K	CM600N0140	11.2	12.5			
GMV-Rh125Zd/Na-K	CM600N0150	12.5	13.5			

Note:1Ton =12000Btu/h = 3.517kW

Notes:

①. The rated cooling capacity data were measured under the following work condition:

②. Indoor Temperature as 27°C DB,19°CWB;

③. Outdoor Temperature as 35°C DB, 24°CWB.

④. The rated heating capacity data were measured under the following work condition:

⑤. Indoor Temperature as 20°C DB,15°CWB;

⑥. Outdoor Temperature as 7°C DB, 6°CWB.

⑦. The filling amount of R410A operating fluid in the table is specified without considering perpendicular throw and pipe connection, so it is required to fill additional refrigerant depending on actual circumstances when the installation is carried out.

⑧. The data in the tables are subject to change so the data on the nameplate shall govern.

2 NOMENCLATURES

2.1 Nomenclature of outdoor unit

GMV	□	□	-	Pd	h	m	****	W	*	/	Na	-	M
1	2	3		4	5	6	7	8	9		10		11

NO.	Description	Options
1	GREE multi variable	
2	Climate Type	Omitted:T1
3	Model Code	L:Cooling only; Omitted:Heat Pump
4	Units Series	Pd:D.C inverter compressor; R: digital compressor
5	Fuction Code	h:Heat Recovery;
6	Combined Type	m:Modular; Omitted:Single
7	Nominal cooling capacity	$*10^2$(w)
8	Outdoor Code	
9	Basic Model quantity	Omitted: Basic Model
10	Refrigerant Type	Na:R410A; Omitted:R22
11	Power Supply Specification	K:220-240V,1Ph,50Hz M:380-415V,3Ph,50Hz

2.2 Nomenclature of indoor unit

GMV	□	-	R	h	***	p	/	Na	-	K
1	2		3	4	5	6		7		8

NO.	Description	Options
1	GREE multi variable	
2	Model Code	L:Cooling only; Omitted:Heat Pump.
3	Multi Type	
4	Fuction Code	h:Heat Recovery
5	Nominal cooling capacity	$*10^2$(w)
6	Unit type	P:Duct type; T:Cassette type; G:Wall mounted type; Zd:Floor Ceiling Type.
7	Refrigerant Type	Na:R410A; Omitted:R22
8	Power Supply Specification	K:220-240V,1Ph,50Hz M:380-415V,3Ph,50Hz

3 FUNCTION

Function		Duct type	Cassette type	Wall Mounted type	Floor Ceiling Type
For Comfortable Air Conditioning	Auto Restart	●	●	●	●
	Fan operation Mode	●	●	●	●
	Auto Swing Controller	-	●	●	●
	Timer Selector	●	●	●	●
	Auto Mode Operation	●	●	●	●
	Cool Mode Operation	●	●	●	●
	Heat Mode Operation	●	●	●	●
	Dry Mode Operation	●	●	●	●
	Fan Mode Operation	●	●	●	●
	Sleep mode setting	●	●	●	●
	Hot Start	●	●	●	●
	Drain Pump	-	●	-	-
For Flexible Control	Double Remote Control	●	●	●	●
	Group Control by 1 Remote Controller	●	●	●	●
	Control by External Command	●	●	●	●

●: Have Functions
- : No Functions

4 PRODUCT DATA

4.1 Product data of outdoor units

Basic Model			GMV-Pdhm224W/Na-M	GMV-Pdhm280W/Na-M	GMV-Pdhm335W/Na-M
Product Code			CN851W0020	CN851W9010	CN851W0030
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	22.4	28.0	33.5
		Btu/h	76,428.8	95,536.0	114,302.0
	Heating	kW	25.0	31.5	37.5
		Btu/h	85,300.0	107,478.0	127,9502.0
Power Input	Cooling	kW	5.5	7.5	9.2
	Heating	kW	5.8	7.7	9.4
Input Current	Cooling	A	9.9	13.4	16.5
	Heating	A	10.4	13.8	16.8
COP	Cooling	W/W	4.07	3.73	3.63
	Heating	W/W	4.31	4.09	4.00
ECOP	Cooling & Heating	W/W	6.8		6.5
Capacity Control		%	20~100	14~100	14~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	2	2	3
Air Flow Rate		m3/min	190		232
Dimensions(H×W×D)		mm	1670×930×770		1670×1340×770
Package Dimensions(H×W×D)		mm	1850×1010×850		1850×1420×850
Net Weight		kg	260	260	372
Gross Weight		kg	284	284	390
Sound Pressure Level		dB(A)	58	58	61
Refrigerant	Type	-	R410A		
	Charge	kg	12.0	12.0	14.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ9.5	Φ9.5	Φ12.7
	Suction Gas	mm	Φ22.2	Φ22.2	Φ28.6
	Discharge Gas	mm	Φ19.1	Φ19.1	Φ19.1
Number of Max. Connectable Indoor Unit		-	13	16	19
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	6.0×5	6.0×5	10.0×5

Basic Model			GMV-Pdhm400W/Na-M	GMV-Pdhm450W/Na-M
Product Code			CN851W0040	CN851W0050
Power Supply			380~415V-3Ph-50Hz	
Capacity	Cooling	kW	40.0	45.0
		Btu/h	136,480.0	153,540.0
	Heating	kW	45.0	50.0
		Btu/h	153,540.0	170,600.0
Power Input	Cooling	kW	12.4	14.3
	Heating	kW	11.2	13.9
Input Current	Cooling	A	22.3	25.6
	Heating	A	20.0	24.9
COP	Cooling	W/W	3.21	3.14
	Heating	W/W	4.02	3.60
ECOP	Cooling & Heating	W/W	6.5	
Capacity Control		%	10~100	10~100
Compressor	Type	-	Hermetically sealed scroll type	
	NO.	-	3	3
Air Flow Rate		m3/min	232	
Dimensions(H×W×D)		mm	1670×1340×770	
Package Dimensions(H×W×D)		mm	1850×1420×850	
Net Weight		kg	402	402
Gross Weight		kg	420	420
Sound Pressure Level		dB(A)	61	61
Refrigerant	Type	-	R410A	
	Charge	kg	16.0	16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor	
Piping Connections	Liquid	mm	Φ12.7	Φ12.7
	Suction Gas	mm	Φ28.6	Φ28.6
	Discharge Gas	mm	Φ22.2	Φ22.2
Number of Max. Connectable Indoor Unit		-	23	26
Ratio of the Connectable Indoor Unit		-	50%~135%	
Recommended Power Cord		mm^2×NO.	10.0×5	10.0×5

Multple Model			GMV-Pdhm504W2/Na-M	GMV-Pdhm560W2/Na-M	GMV-Pdhm615W2/Na-M
Uses combination of			GMV-Pdhm224W/Na-M GMV-Pdhm280W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm335W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	50.4	56.0	61.5
		Btu/h	171,964.8	191,072.0	209,838.0
	Heating	kW	56.5	63.0	69.0
		Btu/h	192,778.0	214,956.0	235,428.0
Power Input	Cooling	kW	13.0	15.0	16.7
	Heating	kW	13.5	15.4	17.1
Input Current	Cooling	A	23.3	26.8	29.9
	Heating	A	24.2	27.8	30.6
COP	Cooling	W/W	3.88	3.73	3.68
	Heating	W/W	4.19	4.09	4.04
Capacity Control		%	9~100	8~100	7~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	4	4	5
Air Flow Rate		m3/min	190+190		190+232
Dimensions(H×W×D)		mm	(1670×930×770)+ (1670×930×770)	(1670×930×770)+ (1670×930×770)	(1670×930×770)+ (1670×1340×770)
Net Weight		kg	260+260	260+260	260+372
Sound Pressure Level		dB(A)	62	62	62
Refrigerant	Type	-	R410A		
	Charge	kg	12.0+12.0	12.0+12.0	12.0+14.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ15.9	Φ15.9	Φ15.9
	Suction Gas	mm	Φ28.6	Φ28.6	Φ28.6
	Discharge Gas	mm	Φ22.2	Φ28.6	Φ28.6
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	29	32	36
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	25.0×5	25.0×5	35.0×5

Multple Model			GMV-Pdhm680W2/Na-M	GMV-Pdhm730W2/Na-M	GMV-Pdhm800W2/Na-M
Uses combination of			GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm400W/Na-M
Power Supply			342~420V-3Ph-50HZ,4wires system		
Capacity	Cooling	kW	68.0	73.0	80.0
		Btu/h	232,016.0	249,076.0	272,960.0
	Heating	kW	76.5	81.5	88.0
		Btu/h	261,018.0	278,078.0	300,256.0
Power Input	Cooling	kW	20.0	21.8	25.0
	Heating	kW	18.9	21.6	22.4
Input Current	Cooling	A	35.7	39.0	44.6
	Heating	A	33.8	38.7	40.0
COP	Cooling	W/W	3.40	3.35	3.20
	Heating	W/W	4.05	3.77	3.93
Capacity Control		%	6~100	6~100	6~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	5	5	6
Air Flow Rate		m3/min	190+232		232+232
Dimensions(H×W×D)		mm	(1670×930×770)+ (1670×1340×770)	(1670×930×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)
Net Weight		kg	260+402	260+402	402+402
Sound Pressure Level		dB(A)	62	63	63
Refrigerant	Type	-	R410A		
	Charge	kg	12.0+16.0	12.0+16.0	16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ15.9	Φ19.1	Φ19.1
	Suction Gas	mm	Φ34.9	Φ34.9	Φ34.9
	Discharge Gas	mm	Φ28.6	Φ28.6	Φ28.6
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	40	43	47
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	35.0×5	35.0×5	35.0×5

Multple Model			GMV-Pdhm850W2/Na-M	GMV-Pdhm900W2/Na-M	GMV-Pdhm960W3/Na-M
Uses combination of			GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	85.0	90.0	96.0
		Btu/h	290,020.0	307,080.0	327,552.0
	Heating	kW	95.0	100.0	108.0
		Btu/h	324,140.0	341,200.0	368,496.0
Power Input	Cooling	kW	26.8	28.6	27.5
	Heating	kW	25.1	27.8	26.6
Input Current	Cooling	A	47.9	51.2	49.1
	Heating	A	44.9	49.8	47.6
COP	Cooling	W/W	3.17	3.15	3.49
	Heating	W/W	3.78	3.60	4.06
Capacity Control		%	5~100	5~100	5~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	6	6	7
Air Flow Rate		m3/min	232+232		190+190+232
Dimensions(H×W×D)		mm	(1670×1340×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×930×770)+ (1670×1340×770)
Net Weight		kg	402+402	402+402	260+260+402
Sound Pressure Level		dB(A)	63	63	64
Refrigerant	Type	-	R410A		
	Charge	kg	16.0+16.0	16.0+16.0	12.0+12.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ19.1	Φ19.1	Φ19.1
	Suction Gas	mm	Φ34.9	Φ34.9	Φ34.9
	Discharge Gas	mm	Φ28.6	Φ28.6	Φ28.6
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	50	53	56
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	35.0×5	35.0×5	50.0×5

Multple Model			GMV-Pdhm1010W3/Na-M	GMV-Pdhm1070W3/Na-M	GMV-Pdhm1130W3/Na-M
Uses combination of			GMV-Pdhm280W/Na-M GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm335W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	101.0	107.0	113.0
		Btu/h	344,612.0	363,378.0	385,556.0
	Heating	kW	113.0	119.0	126.5
		Btu/h	385,556.0	406,028.0	431,618.0
Power Input	Cooling	kW	29.3	31.0	34.3
	Heating	kW	29.3	31.0	32.8
Input Current	Cooling	A	52.4	55.5	61.3
	Heating	A	52.5	55.5	58.7
COP	Cooling	W/W	3.45	3.44	3.29
	Heating	W/W	3.86	3.84	3.86
Capacity Control		%	5~100	5~100	4~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	7	8	8
Air Flow Rate		m3/min	190+190+232	190+232+232	190+232+232
Dimensions(H×W×D)		mm	(1670×930×770)+ (1670×930×770)+ (1670×1340×770)	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)
Net Weight		kg	260+260+402	260+372+402	260+402+402
Sound Pressure Level		dB(A)	64	64	64
Refrigerant	Type	-	R410A		
	Charge	kg	12.0+12.0+16.0	12.0+14.0+16.0	12.0+16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ19.1	Φ19.1	Φ19.1
	Suction Gas	mm	Φ41.3	Φ41.3	Φ41.3
	Discharge Gas	mm	Φ28.6	Φ34.9	Φ34.9
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	59	64	64
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	50.0×5	70.0×5	70.0×5

Multple Model			GMV-Pdhm1180W3/Na-M	GMV-Pdhm1250W3/Na-M	GMV-Pdhm1300W3/Na-M
Uses combination of			GMV-Pdhm280W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M GMV-Pdhm450W/Na-M GMV-Pdhm450W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	118.0	125.0	130.0
		Btu/h	402,616.0	426,500.0	443,560.0
	Heating	kW	131.5	138.5	145.0
		Btu/h	448,678.0	472.562.0	494,740.0
Power Input	Cooling	kW	36.1	39.3	41.1
	Heating	kW	35.5	36.3	39.0
Input Current	Cooling	A	64.6	70.2	73.5
	Heating	A	63.6	64.9	69.8
COP	Cooling	W/W	3.27	3.18	3.16
	Heating	W/W	3.70	3.82	3.72
Capacity Control		%	4~100	4~100	4~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	8	9	9
Air Flow Rate		m3/min	190+232+232	232+232+232	232+232+232
Dimensions(H×W×D)		mm	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)
Net Weight		kg	260+402+402	402+402+402	402+402+402
Sound Pressure Level		dB(A)	64	65	65
Refrigerant	Type	-	R410A		
	Charge	kg	12.0+16.0+16.0	16.0+16.0+16.0	16.0+16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ19.1	Φ19.1	Φ19.1
	Suction Gas	mm	Φ41.3	Φ41.3	Φ41.3
	Discharge Gas	mm	Φ34.9	Φ34.9	Φ34.9
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	64	64	64
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	70.0×5	70.0×5	70.0×5

Multple Model			GMV-Pdhm1350W3/Na-M	GMV-Pdhm1410W4/Na-M	GMV-Pdhm1460W4/Na-M
Uses combination of			GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	135.0	141.0	146.0
		Btu/h	460,620.0	481,092.0	498,152.0
	Heating	kW	150.0	158.0	163.0
		Btu/h	511,800.0	539,096.0	556,156.0
Power Input	Cooling	kW	42.9	41.8	43.6
	Heating	kW	41.7	40.5	43.2
Input Current	Cooling	A	76.8	74.7	78.0
	Heating	A	74.7	72.5	77.4
COP	Cooling	W/W	3.15	3.37	3.35
	Heating	W/W	3.60	3.90	3.77
Capacity Control		%	4~100	3~100	3~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	9	10	10
Air Flow Rate		m3/min	232+232+232	190+190+232+232	190+190+232+232
Dimensions(H×W×D)		mm	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×930×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×930×770)+ (1670×1340×770)+ (1670×1340×770)
Net Weight		kg	402+402+402	260+260+402+402	260+260+402+402
Sound Pressure Level		dB(A)	65	65	65
Refrigerant	Type	-	R410A		
	Charge	kg	16.0+16.0+16.0	12.0+12.0+16.0+16.0	12.0+12.0+16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ19.1	Φ22.2	Φ22.2
	Suction Gas	mm	Φ41.3	Φ44.5	Φ44.5
	Discharge Gas	mm	Φ34.9	Φ34.9	Φ41.3
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	64	66	69
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	70.0×5	95.0×5	95.0×5

Multple Model			GMV-Pdhm1515W4/Na-M	GMV-Pdhm1580W4/Na-M	GMV-Pdhm1630W4/Na-M
Uses combination of			GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	151.5	158.0	163.0
		Btu/h	516,918.0	539,096.0	556,156.0
	Heating	kW	169	176.5	181.5
		Btu/h	576,628.0	602,218.0	619,278.0
Power Input	Cooling	kW	45.3	48.6	50.4
	Heating	kW	44.9	46.7	49.4
Input Current	Cooling	A	81.1	86.9	90.2
	Heating	A	80.4	83.6	88.5
COP	Cooling	W/W	3.34	3.25	3.23
	Heating	W/W	3.76	3.78	3.67
Capacity Control		%	3~100	3~100	3~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	11	11	11
Air Flow Rate		m3/min	190+232+232+232		
Dimensions(H×W×D)		mm	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×930×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)
Net Weight		kg	260+372+402+402	260+402+402+402	260+402+402+402
Sound Pressure Level		dB(A)	65	65	66
Refrigerant	Type	-	R410A		
	Charge	kg	12.0+14.0+16.0+16.0	12.0+16.0+16.0+16.0	12.0+16.0+16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ22.2	Φ22.2	Φ25.4
	Suction Gas	mm	Φ44.5	Φ44.5	Φ54.1
	Discharge Gas	mm	Φ41.3	Φ41.3	Φ41.3
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	71	74	77
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	95.0×5	95.0×5	95.0×5

Multple Model			GMV-Pdhm1700W4/Na-M	GMV-Pdhm1750W4/Na-M	GMV-Pdhm1800W4/Na-M
Uses combination of			GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M
Power Supply			380~415V-3Ph-50Hz		
Capacity	Cooling	kW	170.0	175.0	180.0
		Btu/h	580,040.0	597,100.0	614,160.0
	Heating	kW	187.5	195.0	200.0
		Btu/h	639,750.0	665,340.0	682,400.0
Power Input	Cooling	kW	53.6	55.4	57.2
	Heating	kW	50.2	52.9	55.6
Input Current	Cooling	A	95.8	99.1	102.4
	Heating	A	89.9	94.7	99.6
COP	Cooling	W/W	3.17	3.16	3.15
	Heating	W/W	3.74	3.69	3.60
Capacity Control		%	3~100	3~100	3~100
Compressor	Type	-	Hermetically sealed scroll type		
	NO.	-	12	12	12
Air Flow Rate		m3/min	232+232+232+232		
Dimensions(H×W×D)		mm	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)	(1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)+ (1670×1340×770)
Net Weight		kg	402+402+402+402	402+402+402+402	402+402+402+402
Sound Pressure Level		dB(A)	66	66	66
Refrigerant	Type	-	R410A		
	Charge	kg	16.0+16.0+16.0+16.0	16.0+16.0+16.0+16.0	16.0+16.0+16.0+16.0
Refrigerant Oil		-	Refer to the nameplate of the compressor		
Piping Connections	Liquid	mm	Φ25.4	Φ25.4	Φ25.4
	Suction Gas	mm	Φ54.1	Φ54.1	Φ54.1
	Discharge Gas	mm	Φ41.3	Φ41.3	Φ41.3
	Oil Balancee	mm	Φ12.7	Φ12.7	Φ12.7
Number of Max. Connectable Indoor Unit		-	80	80	80
Ratio of the Connectable Indoor Unit		-	50%~135%		
Recommended Power Cord		mm^2×NO.	95.0×5	95.0×5	95.0×5

Note:

a. The rated cooling capacity data were measured under the following work condition:
b. Indoor Temperature as 27°C(80.6°F)DB,19°C(66.2°F)WB;
c. Outdoor Temperature as 35°C(95°F)DB, 24°C(75.2°F) WB.
d. The rated heating capacity data were measured under the following work condition:
e. Indoor Temperature as 20°C(68°F)DB, 15°C(59°F)WB;
f. Outdoor Temperature as 7°C(44.6°F)DB,6°C(42.8°F)WB.
g. The rated heat recovery ECOP data were measured under the following work condition:
h. Cooling indoor Temperature as 27°C(80.6°F)DB,19°C(66.2°F)WB; Heating indoor Temperature as 20°C(68°F)

DB, 15°C(59°F)WB .Outdoor Temperature as 7°C(44.6°F)DB,6°C(42.8°F)WB.Rated cooling capacity/ Rated heatling capacity=0.8~1.2.

i. ECOP=(Cooling capacity+Heating capacity)/Power input.

j. Equivalent piping length:7.5m,level difference 0m.

k. Sound level:Anechoic chamber conversion value,measured at a point 1m in front of the unit at a height of 1.5 m.During actual operation ,these values are normally somewhat higher as a result of ambient conditions.

l. The filling amount of R410A operating fluid in the table is specified without considering perpendicular throw and pipe connection, so it is required to fill additional refrigerant depending on actual circumstances when the installation is carried out.

m. The data in the tables were subject to change so the data on the nameplate shall govern.

4.2 Product data of indoor units

4.2.1 Duct Type Indoor uint

Model			GMV-Rh22P/Na-K	GMV-Rh25P/Na-K	GMV-Rh28P/Na-K	GMV-Rh32P/Na-K	GMV-Rh36P/Na-K
Product Code			EM800N0541	EM800N0601	EM800N0631	CM800N1000	EM800N0621
Cooling capacity		kW	2.2	2.5	2.8	3.2	3.6
		Btu/h	7506.4	8530.0	9553.6	10918.4	12283.2
Heating capacity		kW	2.5	3.0	3.2	3.6	4.0
		Btu/h	8530.0	10236.0	10918.4	12283.2	13648.0
Air volume		m3/h	450	450	570	570	570
		CFM	265	265	335	335	335
Sound Pressure Level (H/L)		dB(A)	37/33	37/33	39/35	39/35	39/35
External Static Pressure		Pa	10	10	10	10	10
Power Supply			220~240V-1Ph-50Hz				
Fan Motor	Output	kW	0.02				
	Running Current	A	0.24		0.25		
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8"	3/8"	3/8"	1/2"	1/2"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4"	1/4"	1/4"	1/4"	1/4"
	Connection Method		Flare Connection				
Drain Pipes (External Dia. × Thickness)		mm	Φ20×1.7				
Unit Dimensions (W×D×H)		mm	875×680×220				
Package Dimensions (W×D×H)		mm	1165×710×275				
Weight(Net/Gross)		kg	27/31				

Model			GMV-Rh40P/Na-K	GMV-Rh45P/Na-K	GMV-Rh50P/Na-K	GMV-Rh56P/Na-K	GMV-Rh63P/Na-K
Product Code			CM800N1010	EM800N0591	EM800N0611	EM800N0551	CM800N1020
Cooling capacity		kW	4.0	4.5	5.0	5.6	6.3
		Btu/h	13648.0	15354.0	17060.0	19107.2	21495.6
Heating capacity		kW	4.5	5.0	5.8	6.3	7.0
		Btu/h	15354.0	17060.0	19789.6	21495.6	23884.0
Air volume		m3/h	700	700	700	1000	1000
		CFM	412	412	412	588	588
Sound Pressure Level (H/L)		dB(A)	40/36	40/36	40/36	41/38	41/38
External Static Pressure		Pa	20	20	20	25	25
Power Supply			220~240V-1Ph-50Hz				
Fan Motor	Output	kW	0.06			0.09	
	Running Current	A	0.42			0.72	
Connecting Pipes	Gas Pipe (OD)	mm	Φ12.7	Φ12.7	Φ12.7	Φ15.9	Φ15.9
		inch	1/2"	1/2"	1/2"	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ9.52	Φ9.52
		inch	1/4"	1/4"	1/4"	3/8"	3/8"
	Connection Method		Flare Connection				
Drain Pipes (External Dia.×Thickness)		mm	Φ30×1.5				
Unit Dimensions (W×D×H)		mm	980×736×266			1159×736×260	
Package Dimensions (W×D×H)		mm	1220×776×320	1220×776×320	1220×776×320	1398×785×320	1398×785×320
Weight(Net/Gross)		kg	36/39	36/39	36/39	37/41	37/41

Model			GMV-Rh71P/ Na-K	GMV-Rh80P/ Na-K	GMV-Rh90P/ Na-K	GMV-Rh100P/ Na-K	GMV-Rh112P/ Na-K	GMV-Rh125P/ Na-K
Product Code			EM800N0581	EM800N0571	EM800N0561	CM800N1040	EM800N0641	CM800N1030
Cooling capacity		kW	7.1	8.0	9.0	10.0	11.2	12.5
		Btu/h	24225.2	27296.0	30708.0	34120.0	38214.4	42650.0
Heating capacity		kW	8.0	8.8	10.0	11.0	12.5	13.5
		Btu/h	27296.0	30025.6	34120.0	37532.0	42650.0	46062.0
Air volume		m3/h	1100	1100	1700	1700	1700	1700
		CFM	647	647	1000	1000	1000	1000
Sound Pressure Level (H/L)		dB(A)	42/38	42/38	44/40	44/40	44/40	44/40
External Static Pressure		Pa	25	25	30	30	30	30
Power Supply			220~240V-1Ph-50Hz					
Fan Motor	Output	kW	0.09		0.135			
	Running Current	A	0.72		1.20			
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
	Connection Method		Flare Connection					
Drain Pipes (External Dia.×Thickness)		mm	Φ30×1.5					
Unit Dimensions (W×D×H)		mm	1159×736×260		1385×736×260			
Package Dimensions (W×D×H)		mm	1398×785×320		1682×796×310			
Weight(Net/Gross)		kg	37/41	37/41	49/60	49/60	49/60	49/60

Notes:

a. The design of this unit comply with the national executing standard of GB/T18837-2002;
b. Refer to the product nameplate for parameters and specification of the unit;
c. The sound level was tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.2 Concealed Duck High ESP Type indoor uint

Model			GMV-Rh22 P(S)/NaB-K	GMV-Rh28 P(S)/NaB-K	GMV-Rh36 P(S)/NaB-K	GMV-Rh45 P(S)/NaB-K	GMV-Rh56 P(S)/NaB-K
Product Code			CM800N1050 CM800N1140	CM800N1060 CM800N1150	CM800N1070 CM800N1160	CM800N1080 CM800N1170	CM800N1090 CM800N1180
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6
		Btu/h	7506.4	9554	12283	15354	19107
Heating capacity		kW	2.5	3.2	4.0	5.0	6.3
		Btu/h	8530.0	10918	13648	17060	21496
Air volume		m3/h	450	570	570	700	1000
		CFM	265	335	335	412	589
Sound Pressure Level (H/L)		dB(A)	37/33	39/35	39/35	40/36	44/36
External Static Pressure		Pa	50/20	50/20	50/20	50/20	60/30
Power Supply			220~240V-1Ph-50Hz				
Fan Motor	Output	kW	0.04	0.06	0.06	0.07	0.15
	Running Current	A	0.28	0.41	0.41	0.55	1.3
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7	Φ15.9
		inch	3/8"	3/8"	1/2"	1/2"	5/8"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ9.52
		inch	1/4"	1/4"	1/4"	1/4"	3/8"
	Connection Method		Flare Connection				
Drain Pipes (External Dia.×Thickness)		mm	Φ20×1.5	Φ20×1.5	Φ20×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	880x665x250	880x665x250	880x665x250	980x721x266	1155x736x300
Package Dimensions (W×D×H)		mm	1020X745X305	1020X745X305	1020X745X305	1068x766x320	1245x785x360
Weight(Net/Gross)		kg	28.5/33.5	30.5/35.5	30.5/35.5	36.0/39.0	51.0/58.0

Model			GMV-Rh71 P(S)/NaB-K	GMV-Rh90 P(S)/NaB-K	GMV-Rh112 P(S)/NaB-K	GMV-Rh140 P(S)/NaB-K
Product Code			CM800N1100 CM800N1190	CM800N1110 CM800N1200	CM800N1120 CM800N1210	CM800N1130 CM800N1220
Cooling capacity		kW	7.1	9.0	11.2	14.0
		Btu/h	24225	30708	38214	47768
Heating capacity		kW	8	10.0	12.5	15.0
		Btu/h	27296	34120	42650	51180
Air volume		m3/h	1100	1700	1700	2000
		CFM	647	1001	1001	1177
Sound Pressure Level (H/L)		dB(A)	45/41	48/44	48/44	50/46
External Static Pressure		Pa	60/30	80/40	80/40	100/50
Power Supply			220~240V-1Ph-50Hz			
Fan Motor	Output	kW	0.15	0.225	0.225	0.26
	Running Current	A	1.3	2.15	2.15	2.67
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8"	5/8"	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8"	3/8"	3/8"	3/8"
	Connection Method		Flare Connection			
Drain Pipes (External Dia.×Thickness)		mm	Φ30×1.5	Φ30×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	1155x736x300	1425x736x300	1425x736x300	1425x736x300
Package Dimensions (W×D×H)		mm	1245x785x360	1514x785x360	1514x785x360	1514x785x360
Weight(Net/Gross)		kg	51/58	64/73	64/73	65.5/75

Model			GMV-Rh224P/NaB-M	GMV-Rh280P/NaB-M
Product Code			CM800N1240	CM800N1230
Cooling capacity		kW	22.4	28.0
		Btu/h	76	96
Heating capacity		kW	25.0	31.0
		Btu/h	85	106
Air volume		m3/h	4000	4800
		CFM	2354	2825
Sound Pressure Level (H/L)		dB(A)	56	57
External Static Pressure		Pa	66	67
Power Supply			380-415 V-1Ph-50Hz	
Fan Motor	Output	kW	1.2	1.2
	Running Current	A	2.4	2.47
Connecting Pipes	Gas Pipe (OD)	mm	Φ22.2	Φ22.2
		inch	7/8	7/8
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52
		inch	3/8	3/8
	Connection Method		Brazing Connection	Brazing Connection
Drain Pipes(External Dia. × Thickness)		mm	Φ30×1.5	Φ30×1.5
Unit Dimensions(W×D×H) (Main body/Panel)		mm	1463x799x389	1628x869x454
Package Dimensions(W×D×H) (Main body/Panel)		mm	1695x880x470	1900x1025x580
Weight(Net/Gross)		kg	88/107	113/157

Notes:

a. The design of this unit comply with the national executing standard of GB/T18837-2002;

b. Refer to the product nameplate for parameters and specification of the unit;

c. The sound level was tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.3 Cassette Type Indoor unit

Model			GMV-Rh28T/ Na-K	GMV-Rh36T/ Na-K	GMV-Rh45T/ Na-K	GMV-Rh50T/ Na-K	GMV-Rh56T/ Na-K
Product Code			CM501N0131	CM501N0151	CM501N0111	CM501N0161	CM501N0171
Cooling capacity		kW	2.8	3.6	4.5	5	5.6
		Btu/h	9553.6	12283.2	15354.0	17060.0	19107.2
Heating capacity		kW	3.2	4	5	5.8	6.3
		Btu/h	10918.4	13648.0	17060.0	19789.6	21495.6
Air volume		m3/h	680	680	680	680	1180
		CFM	400	400	400	400	695
Sound Pressure Level (H/L)		dB(A)	37/34	37/34	37/34	37/34	39/35
External Static Pressure		Pa	—	—	—	—	—
Power Supply			220~240V-1Ph-50Hz				
Fan Motor	Output	kW	0.06	0.06	0.065	0.065	0.083
	Running Current	A	0.27	0.27	0.28	0.28	0.37
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ12.7	Φ12.7	Φ12.7	Φ15.9
		inch	3/8"	1/2"	1/2"	1/2"	5/8"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35	Φ9.52
		inch	1/4"	1/4"	1/4"	1/4"	3/8"
	Connection Method		Flare Connection	Flare Connection	Flare Connection	Flare Connection	Flare Connection
Drain Pipes(External Dia. × Thickness)		mm	φ30×1.5	φ30×1.5	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions (W×D×H) (Main body/Panel)		mm	840×840×190/ 950×950×60	840×840×190/ 950×950×60	840×840×190/ 950×950×60	840×840×190/ 950×950×60	840×840×240/ 950×950×60
Package Dimensions (W×D×H) (Main body/Panel)		mm	1075×960×257/ 1025×1040×115	1075×960×257/ 1025×1040×115	1075×960×257/ 1025×1040×115	1075×960×257/ 1025×1040×115	1075×960×310/ 1025×1040×115
Weight(Net/Gross)		kg	25/33.5	25/33.5	25/33.5	25/33.5	30.5/38.8
Panel Weight (Net/Gross)		kg	6.5/10.0	6.5/10.0	6.5/10.0	6.5/10.0	6.5/10.0

Model			GMV-Rh63T/Na-K	GMV-Rh71T/Na-K	GMV-Rh80T/Na-K	GMV-Rh90T/Na-K	GMV-Rh100T/Na-K
Product Code			CM501N0181	CM501N0121	CM501N0191	CM501N0201	CM501N0211
Cooling capacity		kW	6.3	7.1	8	9	10
		Btu/h	21495.6	24225.2	27296.0	30708.0	34120.0
Heating capacity		kW	7	8	8.8	10	11
		Btu/h	23884.0	27296.0	30025.6	34120.0	37532.0
Air volume		m3/h	1180	1180	1180	1860	1860
		CFM	695	695	695	1095	1095
Sound Pressure Level (H/L)		dB(A)	39/35	39/35	39/35	40/36	40/36
External Static Pressure		Pa	—	—	—	—	—
Power Supply			220~240V-1Ph-50Hz				
Fan Motor	Output	kW	0.035	0.083	0.083	0.133	0.133
	Running Current	A	0.37	0.37	0.37	0.59	0.59
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9	Φ15.9	Φ15.9
		inch	5/8"	5/8"	5/8"	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52	Φ9.52	Φ9.52
		inch	3/8"	3/8"	3/8"	3/8"	3/8"
	Connection Method		Flare Connection				
Drain Pipes(External Dia. × Thickness)		mm	φ30×1.5	φ30×1.5	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions (W×D×H) (Main body/Panel)		mm	840×840×240/950×950×60	840×840×240/950×950×60	840×840×240/950×950×60	840×840×320/950×950×60	840×840×320/950×950×60
Package Dimensions (W×D×H) (Main body/Panel)		mm	1075×960×310/1025×1040×115	1075×960×310/1025×1040×115	1075×960×310/1025×1040×115	1075×960×394/1025×1040×115	1075×960×394/1025×1040×115
Weight(Net/Gross)		kg	30.5/38.8	30.5/38.8	30.5/38.8	38.5/46.5	38.5/46.5
Panel Weight (Net/Gross)		kg	6.5/10.0	6.5/10.0	6.5/10.0	6.5/10.0	6.5/10.0

Model			GMV-Rh112T/Na-K	GMV-Rh125T/Na-K
Product Code			CM501N0141	CM501N0221
Cooling capacity		kW	11.2	12.5
		Btu/h	38214.4	42650.0
Heating capacity		kW	12.5	13.5
		Btu/h	42650.0	46062.0
Air volume		m3/h	1860	1860
		CFM	1095	1095
Sound Pressure Level (H/L)		dB(A)	40/36	40/36
External Static Pressure		Pa	—	—
Power Supply			220~240V-1Ph-50Hz	
Fan Motor	Output	kW	0.133	0.133
	Running Current	A	0.59	0.59
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9
		inch	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52
		inch	3/8"	3/8"
	Connection Method		Flare Connection	Flare Connection
Drain Pipes(External Dia. × Thickness)		mm	φ30×1.5	φ30×1.5
Unit Dimensions(W×D×H) (Main body/Panel)		mm	840×840×320/ 950×950×60	840×840×320/ 950×950×60
Package Dimensions(W×D×H) (Main body/Panel)		mm	1075×960×394/ 1025×1040×115	1075×960×394/ 1025×1040×115
Main body Weight(Net/Gross)		kg	38.5/46.5	38.5/46.5
Panel Weight(Net/Gross)		kg	6.5/10.0	6.5/10.0

Model			GMV-Rh22T/NaA-K	GMV-Rh28T/NaA-K	GMV-Rh36T/NaA-K	GMV-Rh45T/NaA-K
Product Code			CM501N0260	CM501N0250	CM501N0240	CM501N0230
Cooling capacity		kW	2.2	2.80	3.60	4.50
		Btu/h	7.51	9.55	12.28	15.35
Heating capacity		kW	2.50	3.20	4.00	5.00
		Btu/h	8.53	10.92	13.65	17.06
Air volume		m3/h	600	600	600	600
		CFM	353	353	353	353
Sound Pressure Level (H/L)		dB(A)	47	47	47	47
External Static Pressure		Pa	—	—	—	—
Power Supply			220-240V-50Hz			
Fan Motor	Output	kW	0.011	0.011	0.011	0.011
	Running Current	A	0.2	0.2	0.2	0.2
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8"	3/8"	1/2"	1/2"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4"	1/4"	1/4"	1/4"
	Connection Method		Flare Connection			
Drain Pipes (External Dia. × Thickness)		mm	25.5×2.8			
Unit Dimensions(W×D×H) (Main body/Panel)		mm	570×570×230/650×650×50			
Package Dimensions(W×D×H) (Main body/Panel)		mm	870×688×325/733×673×117			
Main body Weight(Net/Gross)		kg	16/2.5		18/2.5	
Panel Weight(Net/Gross)		kg	25/3.56		27/3.56	

Notes:

a. The design of this unit comply with the national executing standard of GB/T18837-2002;

b. Refer to the product nameplate for parameters and specification of the unit;

c. The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.4 Wall-mounted Type Indoor uint

Model			GMV- Rh22G/Na-K	GMV- Rh28G/Na-K	GMV- Rh36G/Na-K	GMV-Rh45G/Na-K
			CM100N0090	CM100N0100	CM100N0110	CM100N0120
Cooling capacity		kW	2.2	2.8	3.6	4.5
		Btu/h	7506.4	9553.6	12283.2	15354.0
Heating capacity		kW	2.5	3.2	4.0	5.0
		Btu/h	8530.0	10918.4	13648.0	17060.0
Air volume		m3/h	360	360	500	500
		CFM	212	212	294	294
Sound Pressure Level (H/L)		dB(A)	37/28	37/28	43/32	43/32
External Static Pressure		Pa	—	—	—	—
Power Supply			220~240V-1Ph-50Hz			
Fan Motor	Output	kW	0.014	0.014	0.022	0.022
	Running Current	A	0.15	0.15	0.22	0.22
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ9.52	Φ12.7	Φ12.7
		inch	3/8"	3/8"	1/2"	1/2"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ6.35
		inch	1/4"	1/4"	1/4"	1/4"
	Connection Method		Flare Connection	Flare Connection	Flare Connection	Flare Connection
Drain Pipes (External Dia. × Thickness)		mm	φ20×1.5	φ20×1.5	φ20×1.5	φ20×1.5
Unit Dimensions(W×D×H)		mm	770×190×250	770×190×250	830×189×285	830×189×285
Package Dimensions(W×D×H)		mm	860×272×478	860×272×478	905×265×533	905×265×533
Weight(Net/Gross)		kg	8.5/15.6	8.5/15.6	11.0/18.5	11.0/18.5

Model			GMV-Rh50G/Na-K	GMV-Rh56G/Na-K	GMV-Rh71G/Na-K	GMV-Rh80G/Na-K
Product Code			CM100N0130	CM100N0140	CM100N0150	CM100N0160
Cooling capacity		kW	5.0	5.6	7.1	8.0
		Btu/h	17060.0	19107.2	24225.2	27296.0
Heating capacity		kW	5.8	6.3	8.0	9.0
		Btu/h	19789.6	21495.6	27296.0	30708.0
Air volume		m3/h	700	750	1200	1200
		CFM	412	442	707	707
Sound Pressure Level (H/L)		dB(A)	45/38	45/40	49/44	49/44
External Static Pressure		Pa	—	—	—	—
Power Supply			220~240V-1Ph-50Hz			
Fan Motor	Output	kW	0.020	0.020	0.026	0.026
	Running Current	A	0.15	0.15	0.27	0.27
Connecting Pipes	Gas Pipe (OD)	mm	Φ12.7	Φ15.9	Φ15.9	Φ15.9
		inch	1/2"	5/8"	5/8"	5/8"
	Liquid Pipe (OD)	mm	Φ6.35	Φ9.52	Φ9.52	Φ9.52
		inch	1/4"	3/8"	3/8"	3/8"
	Connection Method		Flare Connection	Flare Connection	Flare Connection	Flare Connection
Drain Pipes (External Dia. × Thickness)		mm	φ30×1.5	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions(W×D×H)		mm	1020×228×310	1020×228×310	1178×227×326	1178×227×326
Package Dimensions(W×D×H)		mm	1080×390×420	1080×390×420	1415×333×475	1415×333×475
Weight(Net/Gross)		kg	14.7/23.6	14.7/23.6	18.2/27.3	18.2/27.3

Notes:

a. The design of this unit comply with the national executing standard of GB/T18837-2002;

b. Refer to the product nameplate for parameters and specification of the unit;

c. The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.5 Floor Ceiling Type Indoor unit

Model			GMV-Rh28Zd/Na-K	GMV-Rh36Zd/Na-K	GMV-Rh50Zd/Na-K	GMV-Rh71Zd/Na-K
Product Code			CM600N0100	CM600N0110	CM600N0120	CM600N0130
Cooling capacity		kW	2.8	3.6	5	7.1
		Btu/h	9553.6	12283.2	17060.0	24225.2
Heating capacity		kW	3.2	4	5.8	8
		Btu/h	10918.4	13648.0	19789.6	27296.0
Air volume		m3/h	550	600	700	1170
		CFM	324	353	412	689
Sound Pressure Level (H/L)		dB(A)	43	44	50	48
External Static Pressure		Pa	—	—	—	—
Power Supply			220~240V-1Ph-50Hz			
Fan Motor	Output	kW	0.01	0.01	0.04	0.1
	Running Current	A	0.09	0.09	0.36	0.88
Connecting Pipes	Gas Pipe (OD)	mm	Φ9.52	Φ12.7	Φ12.7	Φ15.9
		inch	3/8"	1/2"	1/2"	5/8"
	Liquid Pipe (OD)	mm	Φ6.35	Φ6.35	Φ6.35	Φ9.52
		inch	1/4"	1/4"	1/4"	3/8"
	Connection Method		Flare Connection	Flare Connection	Flare Connection	Flare Connection
Drain Pipes (External Dia. × Thickness)		mm	φ17×1.75	φ17×1.75	φ17×1.75	φ17×1.75
Unit Dimensions(W×D×H)		mm	840×238×695	840×238×695	840×238×695	1300×188×600
Package Dimensions(W×D×H)		mm	1035×295×805	1035×295×805	1035×295×805	1514×248×724
Weight(Net/Gross)		kg	26/37	26/37	27/39	32/43

Model			GMV-Rh90Zd/Na-K	GMV-Rh112Zd/Na-K	GMV-Rh125Zd/Na-K
Product Code			CM600N0090	CM600N0140	CM600N0150
Cooling capacity		kW	9.0	11.2	12.5
		Btu/h	30700	38210	42650
Heating capacity		kW	10	12.5	13.5
		Btu/h	34120	42650	46060
Air volume		m3/h	2100	2200	2300
		CFM	1235	1294	1353
Sound Pressure Level (H/L)		dB(A)	51	54	55
External Static Pressure		Pa	—	—	—
Power Supply			220~240V-1Ph-50Hz		
Fan Motor	Output	kW	0.15	0.18	0.18
	Running Current	A	1.5	1.8	1.8
Connecting Pipes	Gas Pipe (OD)	mm	Φ15.9	Φ15.9	Φ15.9
		inch	5/8	5/8	5/8
	Liquid Pipe (OD)	mm	Φ9.52	Φ9.52	Φ9.52
		inch	3/8	3/8	3/8
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes (External Dia. × Thickness)		mm	28×3.0	28×3.0	28×3.0
Unit Dimensions (W×D×H)		mm	1590×238×695	1590×238×695	1590×238×695
Package Dimensions (W×D×H)		mm	1814×330×930	1814×330×930	1814×330×930
Weight (Net/Gross)		kg	44/53	44/53	44/53

Notes:

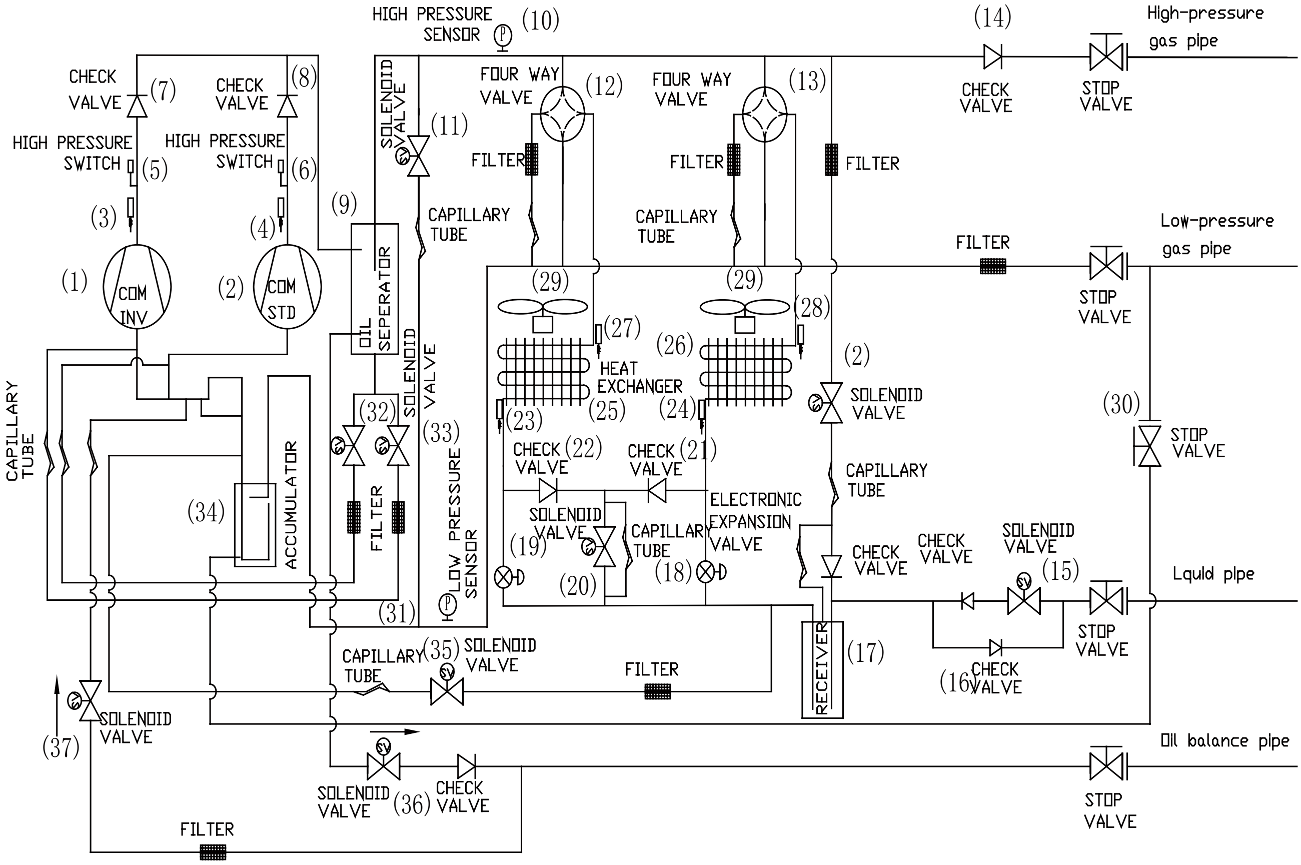
a. The design of this unit comply with the national executing standard of GB/T18837-2002;
b. Refer to the product nameplate for parameters and specification of the unit;
c. The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.3 Operation Range

Model	Range of Outdoor Temperature°C(°F)
Cooling	-10~48(14~118.4)
Heating	-20~27(-4~80.6)
Cooling and Heating	-10~20(14~68)

5 PIPING DIAGRAM

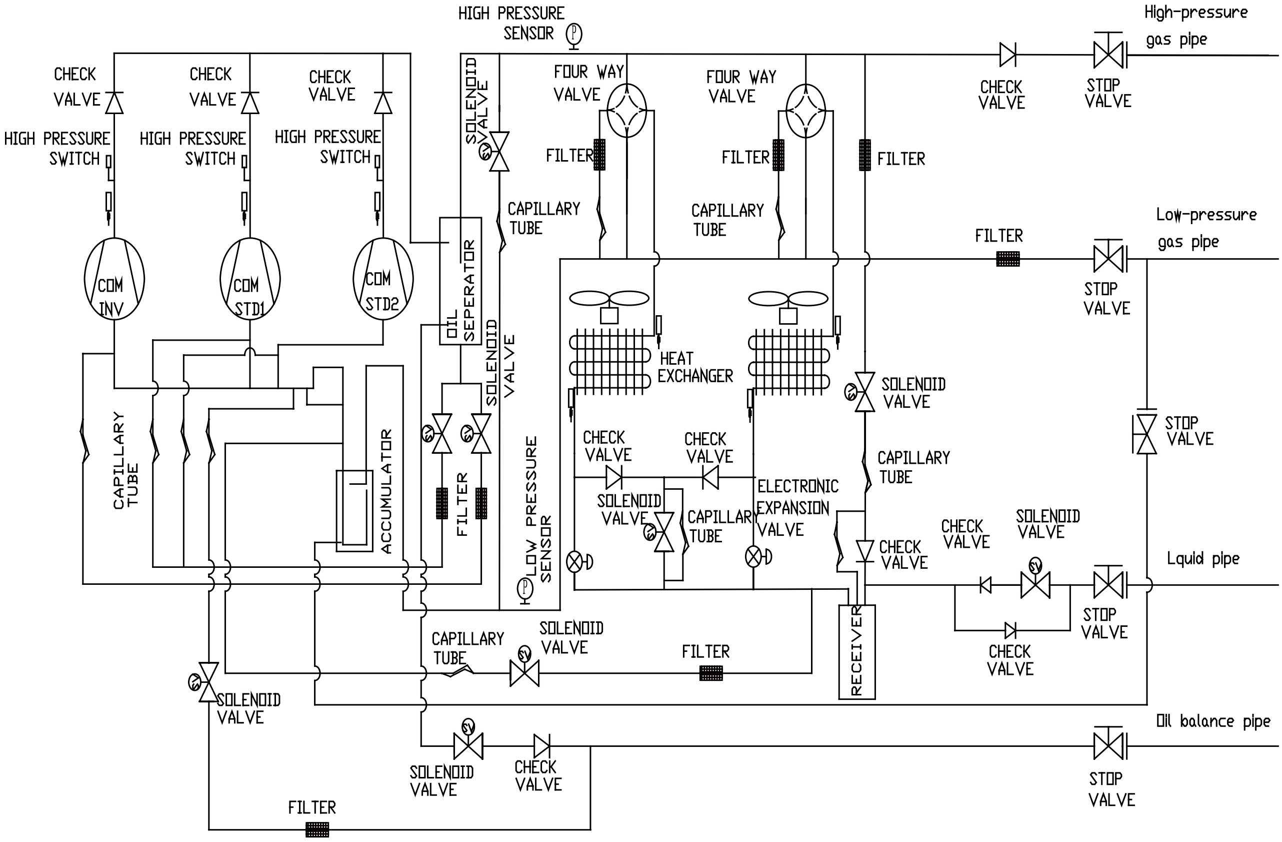
5.1Piping diagram of GMV-Pdhm224W/Na-M,GMV-Pdhm280W/Na-M:


HIGH PRESSURE SENSOR
(10)
(14)
High-pressure gas pipe
CHECK VALVE
STOP VALVE
CHECK VALVE (7)
CHECK VALVE (8)
SOLENOID VALVE
FOUR WAY VALVE (12)
FOUR WAY VALVE (13)
(11)
HIGH PRESSURE SWITCH (5)
HIGH PRESSURE SWITCH (6)
FILTER
FILTER
FILTER
(3)
(4)
(9)
CAPILLARY TUBE
CAPILLARY TUBE
Low-pressure gas pipe
FILTER
(1) COM INV
(2) COM STD
OIL SEPERATOR
(29)
(29)
STOP VALVE
(28)
(27)
(26)
(2)
HEAT EXCHANGER
CAPILLARY TUBE
SOLENOID VALVE
SOLENOID VALVE
(32)
(33)
(25)
(24)
(23)
(30)
STOP VALVE
CHECK VALVE (22)
CHECK VALVE (21)
CAPILLARY TUBE
ACCUMULATOR
FILTER
LOW PRESSURE SENSOR
ELECTRONIC EXPANSION VALVE
(34)
SOLENOID VALVE
CAPILLARY TUBE
(19)
(20)
(18)
CHECK VALVE
CHECK VALVE
SOLENOID VALVE
(15)
Liquid pipe
(31)
STOP VALVE
CAPILLARY TUBE (35) SOLENOID VALVE
FILTER
RECEIVER
(17)
(16) CHECK VALVE
SOLENOID VALVE
(37)
Oil balance pipe
SOLENOID VALVE (36) CHECK VALVE
STOP VALVE
FILTER

NO.	Name	Major Function
1	Inverter compressor(INV)	According to practical requirements, inverter compressor adjusts its rotation speed within 30rps~90rps to regulate capacity.
2	Standard compressor(STD1)	When inverter compressor can't meet the requirements of system capacity, the standard compressor will start up immediately.
3	Thermistor(INV discharge pipe)	Detect discharge temp of inverter compressor to protect the compressor.
4	Thermistor(STD1 discharge pipe)	Detect discharge temp of standard compressor to control and protect the compressor.
5	High pressure switch(for INV)	When discharge pressure of inverter compressor exceeds the setting value of high pressure switch, it will send signal to stop the complete unit so that the compressor can be protected.
6	High pressure switch(for STD1)	When discharge pressure of standard compressor exceeds the setting value of high pressure switch, it will send signal to stop the complete unit so that the compressor can be protected.
7	Check valve(for INV)	It is used for the startup abnormality of compressor and other problems caused by the backward gas with high pressure entering the compressor, when preventing the inverter compressor from stop.
8	Check valve(for STD1)	It is used for the startup abnormality of compressor and other problems caused by the backward gas with high pressure entering the compressor, when preventing the standard compressor from stop.
9	Oil seperator	Make sure the separation of gas and oil as well as reliability of compressor.
10	High pressure sensor	Detect real-time high pressure value and protect compressor and other controlled operations.
11	Solenoid valve (hot gas)	Prevent low pressure when the system is running and the differential pressure when the compressor starts.
12	Four way valve (for heat exchanger A)	Switch the status of heat exchanger A.
13	Four way valve (for heat exchanger B)	Switch the status of heat exchanger B.
14	Check valve	Prevent backward gas with high pressure from entering OFF module.
15	Solenoid valve (for heating)	It is applied when the system is in mainly heating operation or all heating operation
16	Check valve(for cooling)	It is applied when the system is in mainly cooling operation or all cooling operation
17	Receiver	Surplus refrigerants will be circulated by storage system to avoid abnormality of system.
18	Electronic expansion valve(for heat exchanger B)	Adjust degree of superheat of heat exchanger B; adjust the opening angle of electronic expansion valve in real time according to the requirements of degree of superheat to make sure heat exchange and the reliability of system.

19	Electronic expansion valve(for heat exchanger A)	Adjust degree of superheat of heat exchanger A; adjust the opening angle of electronic expansion valve in real time according to the requirements of degree of superheat to make sure heat exchange and the reliability of system.
20	Solenoid valve (for cooling)	It is applied when the system is in mainly cooling operation or all cooling operation.
21	Check valve(for heat exchanger B)	When there is only heat exchanger A working, it can prevent refrigerants from entering heat exchange B.
22	Check valve(for heat exchanger A)	When there is only heat exchanger B working, it can prevent refrigerants from entering heat exchange A.
23	Thermistor(for heat exchanger A)	Detect inlet pipe of heat exchanger A in heating and control the degree of superheat of heat exchanger.
24	Thermistor(for heat exchanger B)	Detect inlet pipe of heat exchanger B in heating and control the degree of superheat of heat exchanger.
25	Heat exchanger A	Heat exchanger
26	Heat exchanger B	
27	Thermistor(for heat exchanger A)	Detect outlet pipe of heat exchanger A in heating and control the degree of superheat of heat exchanger.
28	Thermistor(for heat exchanger B)	Detect outlet pipe of heat exchanger B in heating and control the degree of superheat of heat exchanger.
B	Inverter fan motor	According to the requirements of pressure control, adjust the speed of rotation of motor in real time and its range is within 0rps~55rps
30	Stop valve (for low pressure liquid)	Fast discharge the liquid refrigerants in gas-liquid separator to increase the circulated volume of refrigerants.
31	Low pressure sensor	Detect real-time low pressure value of system to protect compressor and other controlled operations.
32	Solenoid valve (returing oil for STD)	This valve is normal open to make sure the return oil of the standard compressor and oil storaged in oil separator when the unit stops.
33	Solenoid valve (returing oil for INV)	This valve is normal open to make sure the return oil of the inverter compressor and oil storaged in oil separator when the unit stops.
34	Accumulator	Prevent the compressor from running in wet.
35	Solenoid valve (liquid bypass)	Prevent the compressor running at high temp.
36	Solenoid valve (oil balance)	Control oil balance among modules.
37	Solenoid valve (oil balance)	Control oil balance among modules.

5.2 Piping diagram of GMV-Pdhm335W/Na-M, GMV-Pdhm400W/Na-M, GMV-Pdhm450W/Na-M:


HIGH PRESSURE SENSOR
High-pressure gas pipe
CHECK VALVE
CHECK VALVE
CHECK VALVE
HIGH PRESSURE SWITCH
HIGH PRESSURE SWITCH
HIGH PRESSURE SWITCH
SOLENOID VALVE
FOUR WAY VALVE
FOUR WAY VALVE
CHECK VALVE
STOP VALVE
FILTER
FILTER
FILTER
CAPILLARY TUBE
CAPILLARY TUBE
Low-pressure gas pipe
FILTER
STOP VALVE
COM INV
COM STD1
COM STD2
OIL SEPERATOR
SOLENOID VALVE
HEAT EXCHANGER
SOLENOID VALVE
STOP VALVE
CAPILLARY TUBE
ACCUMULATOR
FILTER
LOW PRESSURE SENSOR
CHECK VALVE
CHECK VALVE
CAPILLARY TUBE
SOLENOID VALVE
CAPILLARY TUBE
ELECTRONIC EXPANSION VALVE
CHECK VALVE
CHECK VALVE
SOLENOID VALVE
Liquid pipe
STOP VALVE
CHECK VALVE
RECEIVER
CAPILLARY TUBE
SOLENOID VALVE
FILTER
SOLENOID VALVE
Oil balance pipe
SOLENOID VALVE
CHECK VALVE
STOP VALVE
FILTER

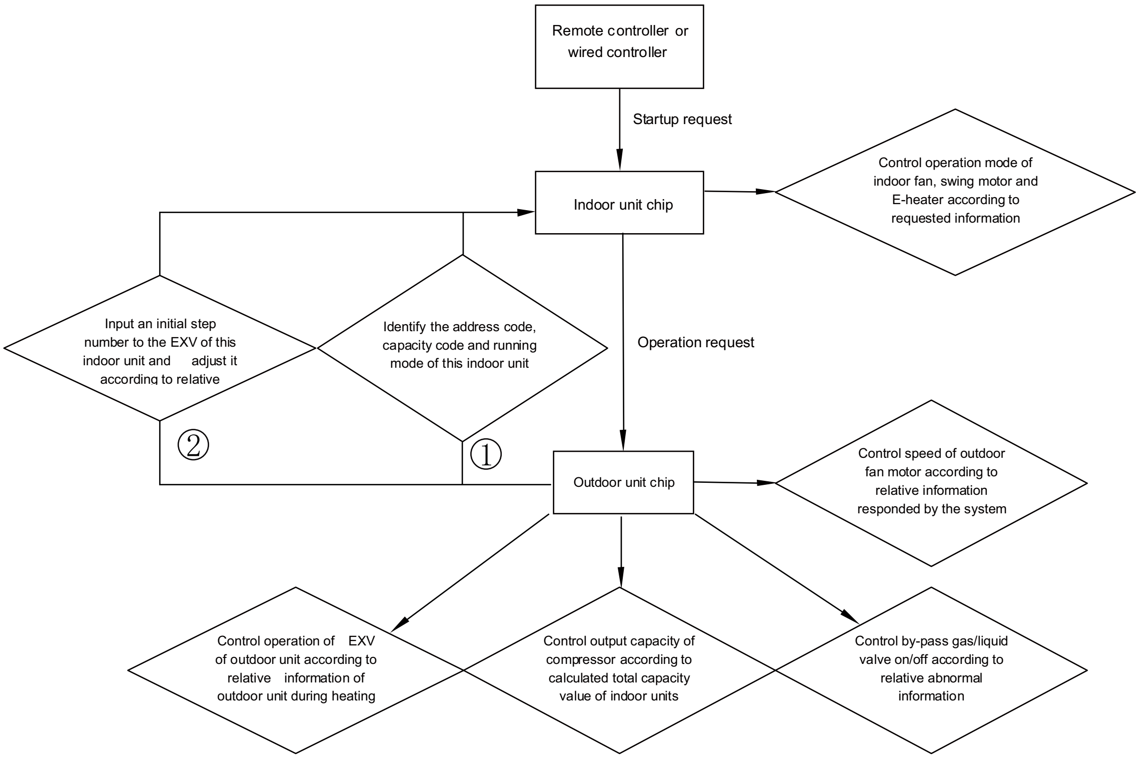
CONTROL

CONTROL

1 THE CONTROL MODE OF INVERTER MULTI VRF

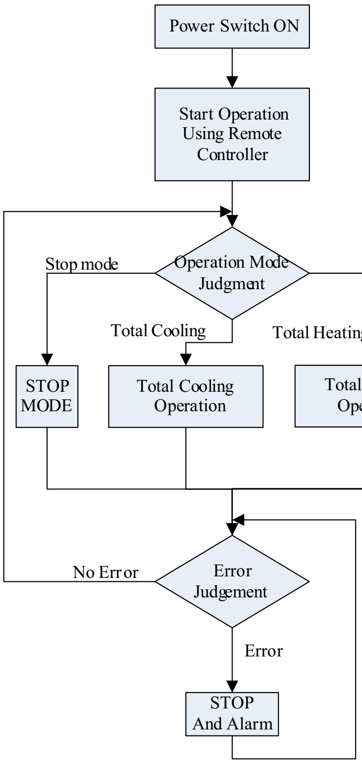
The control logic of Gree heat recovery D.C inverter muti VRF apply with modular design. One outdoor unit in the system connects with multiple indoor units which can run independently as requested. According to each request signal from indoor unit, master chip identifies its address code, capacity code, requested running mode and calculate the actual capacity demand of the indoor unit based on received indoor ambient temp. and setting temp. Then, an initial setting for electric expansion valve will be sent to the indoor unit which will be further adjusted according to the change of ambient temp. and setting temp. in order to supply each indoor unit with appropriate volume of refrigerants.

Master chip controls the actual output capacity of compressor by calculating the total amount of actual capacity demand of each indoor unit, which is the requested output capacity of the indoor unit.

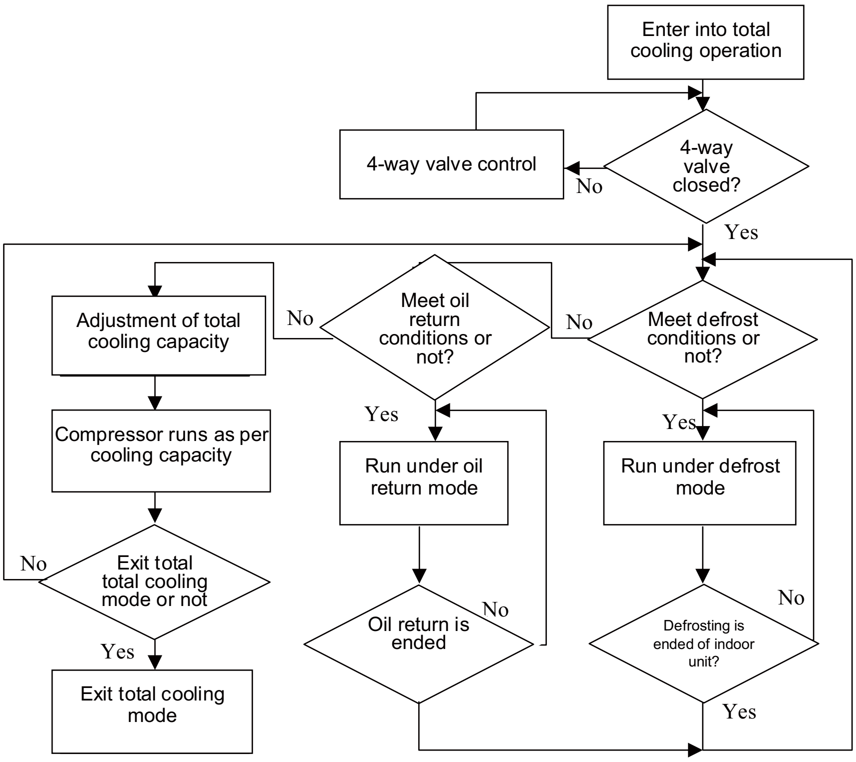

Remote controller or wired controller
Startup request
Indoor unit chip
Control operation mode of indoor fan, swing motor and E-heater according to requested information
Input an initial step number to the EXV of this indoor unit and adjust it according to relative
Identify the address code, capacity code and running mode of this indoor unit
Operation request
②
①
Outdoor unit chip
Control speed of outdoor fan motor according to relative information responded by the system
Control operation of EXV of outdoor unit according to relative information of outdoor unit during heating
Control output capacity of compressor according to calculated total capacity value of indoor units
Control by-pass gas/liquid valve on/off according to relative abnormal information

2 OPERATION FLOWCHART

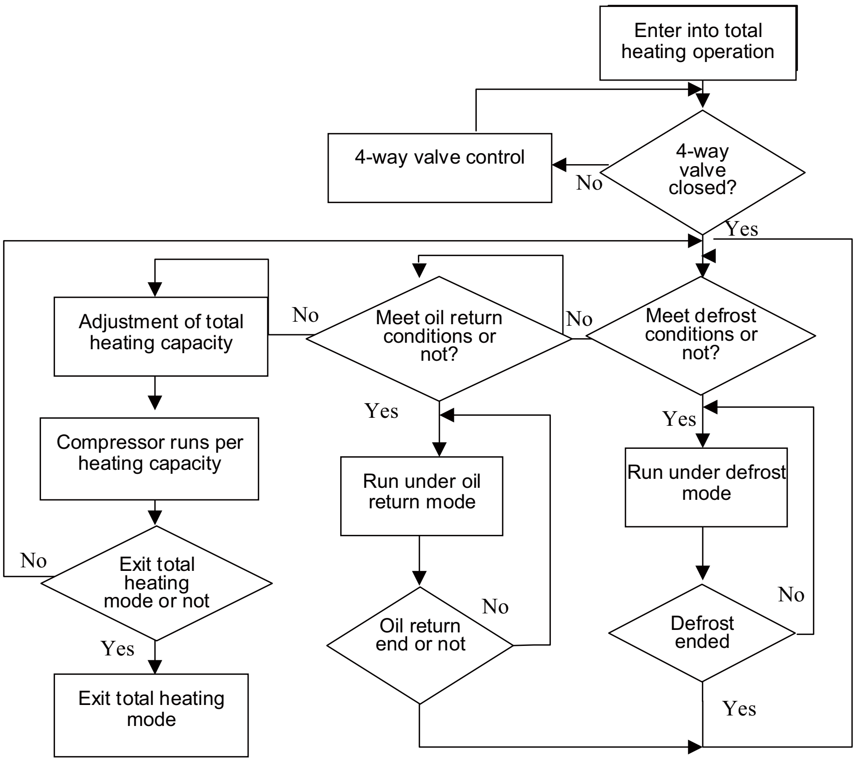
2.1 The System Starting Operation


Power Switch ON
Start Operation Using Remote Controller
Operation Mode Judgment
Stop mode
Total Cooling
Total Heating
Heat Recover
STOP MODE
Total Cooling Operation
Total Heating Operation
Heat Recover Operation
No Error
Error Judgement
Error
STOP And Alarm

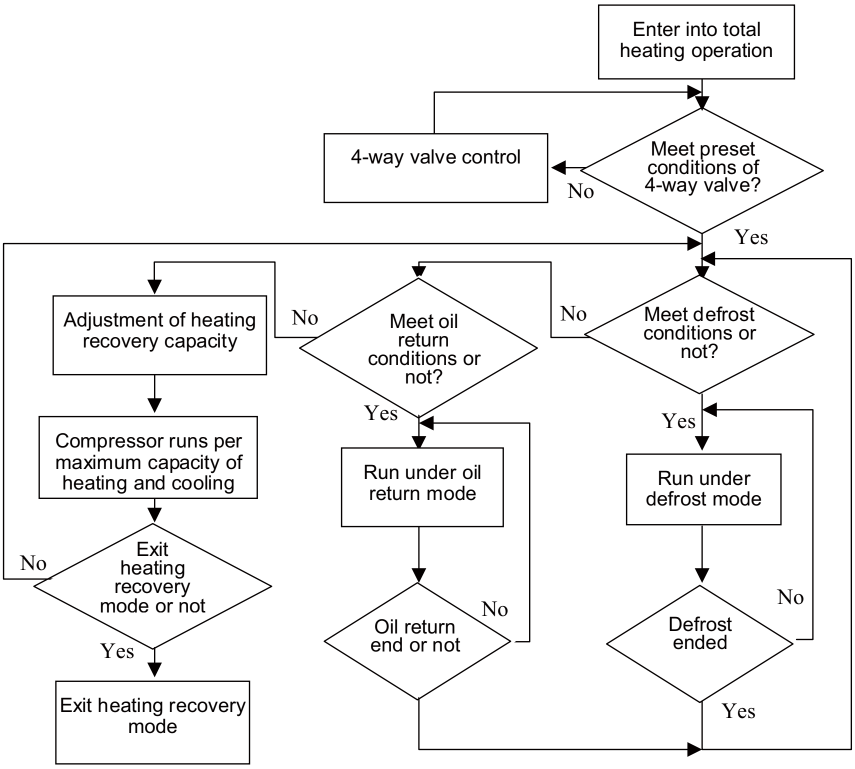
2.2 Cooling/Dry Operation


Enter into total cooling operation
4-way valve control
No
4-way valve closed?
Yes
Adjustment of total cooling capacity
No
Meet oil return conditions or not?
No
Meet defrost conditions or not?
Compressor runs as per cooling capacity
Yes
Run under oil return mode
Yes
Run under defrost mode
No
Exit total total cooling mode or not
Oil return is ended
No
No
Defrosting is ended of indoor unit?
Yes
Exit total cooling mode
Yes

2.3 Heating Operation


Enter into total heating operation
4-way valve control
4-way valve closed?
No
Yes
Adjustment of total heating capacity
No
Meet oil return conditions or not?
No
Meet defrost conditions or not?
Yes
Yes
Compressor runs per heating capacity
Run under oil return mode
Run under defrost mode
No
Exit total heating mode or not
Oil return end or not
No
No
Defrost ended
Yes
Exit total heating mode
Yes

2.4 Heat Recovery Operation


Enter into total heating operation
4-way valve control
Meet preset conditions of 4-way valve?
No
Yes
Adjustment of heating recovery capacity
No
Meet oil return conditions or not?
No
Meet defrost conditions or not?
Yes
Yes
Compressor runs per maximum capacity of heating and cooling
Run under oil return mode
Run under defrost mode
No
Exit heating recovery mode or not
Oil return end or not
No
No
Defrost ended
Yes
Exit heating recovery mode
Yes

3 MAIN LOGIC

3.1 Control Function of Outdoor Unit

(1) The Capacity of Compressor Output

Definition: when all of compressors run fully, the capacity is 100%.

The capacity of compressor is counted by the indoor capacity, which relate to running or stopping ,the expectative temperature,the outdoor temperature and the indoor temperature.Then the capacity of compressor output will match the indoor capacity optimally.

The capacity of compressor output in the all cooling mode and mainly cooling mode:

$$Q=\frac{\sum_{i=1}^{j}(q_{iON}A_i+q_{iOFF}\times B_i)}{\sum_{i=1}^{j}q_i}\times 100\%$$

The capacity of compressor output in the all heating mode and mainly heating mode:

$$Q=\frac{\sum_{i=1}^{j}(q_{iON}A_i+q_{iOFF}\times B_i)}{\sum_{i=1}^{j}q_i}\times 100\%$$

The frequency of the inverter compressor is counted on:

$f=F_{\max}\times Q$, and f is not 0, min. value is $F_{\min}$, Max.value is $F_{\max}$

Thereinto: Q——the capacity of compressor output;

f——the frequency of the inverter compressor;

$F_{\max}$——the maximal frequency of the inverter compressor;

$F_{\min}$——the minimal frequency of the inverter compressor;

q_i——the rated capacity of indoor unit;

q_{iON}——the rated capacity of indoor unit which is running;

q_{iOFF}——the rated capacity of indoor unit which is stopping;

A_i——the correction of the outdoor and indoor temperature.

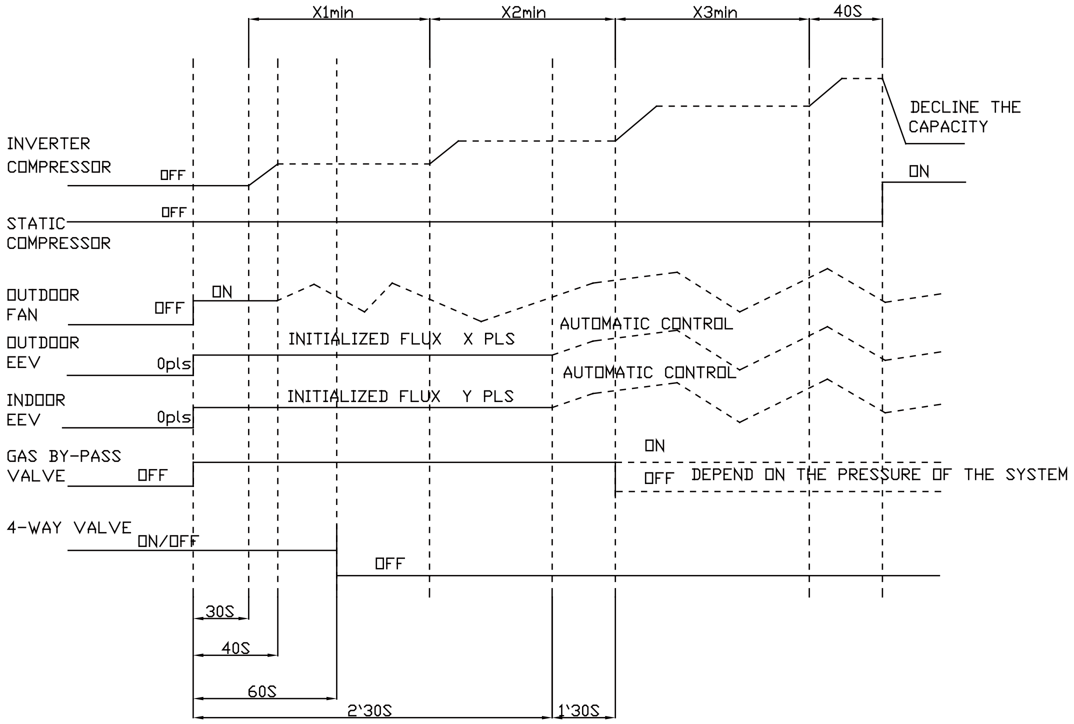
B_i——the correction of the stopping indoor unit.

(2) Compressor Start Control

Except the system receiving the stop signal,if the system start,it must run for 6min at least.Once the compressor stops,it starts after 3min later at least.

The starting scheduling of cooling or dry code of indoor unit:

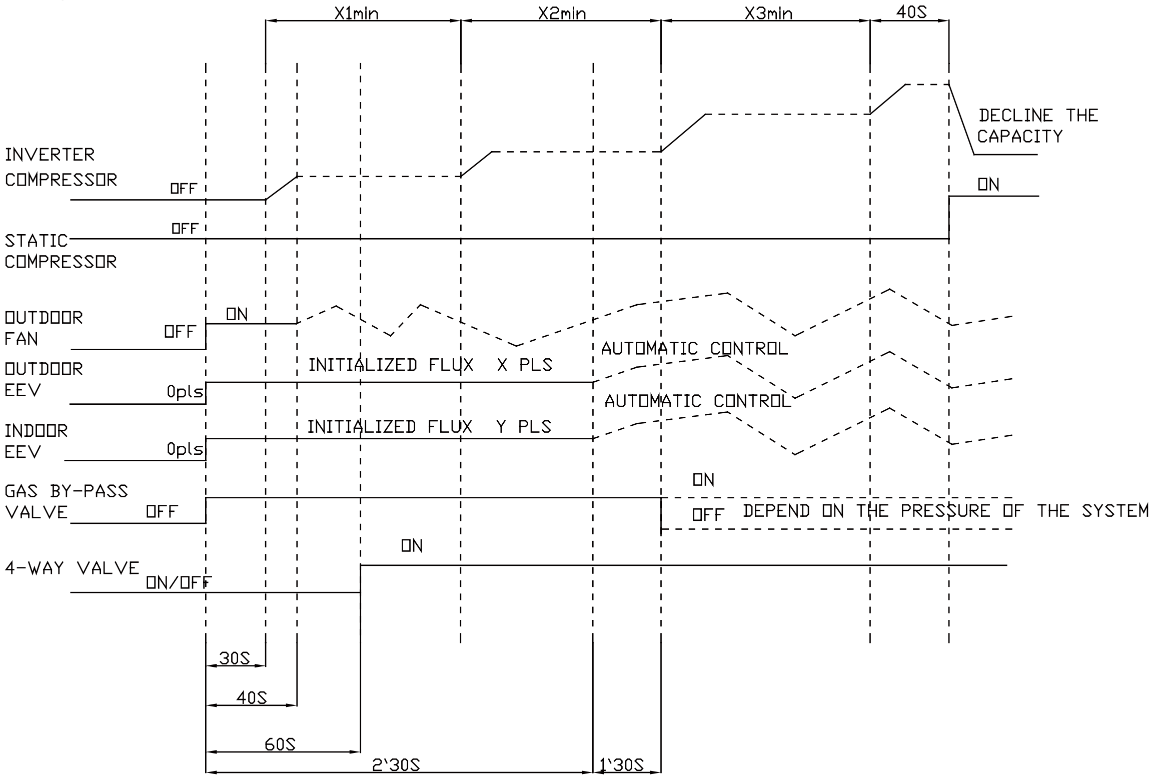
During the starting, the inverter compressor must run at 45Hz for 40s, 55Hz for 80s, 70Hz for 80s, and 80Hz for 40s. In this course, if the high pressure lowers frequency, lowering frequency by discharge will quit initialization and they will run in their own ways respectively.


X1min
X2min
X3min
40S
DECLINE THE CAPACITY
INVERTER COMPRESSOR
OFF
ON
STATIC COMPRESSOR
OFF
OUTDOOR FAN
ON
OFF
AUTOMATIC CONTROL
OUTDOOR EEV
0pls
INITIALIZED FLUX X PLS
AUTOMATIC CONTROL
INDOOR EEV
0pls
INITIALIZED FLUX Y PLS
GAS BY-PASS VALVE
OFF
ON
OFF
DEPEND ON THE PRESSURE OF THE SYSTEM
4-WAY VALVE
ON/OFF
OFF
30S
40S
60S
2'30S
1'30S

The starting scheduling of heating code of indoor unit:

During the starting, the inverter compressor must run at 45Hz for 40s, 55Hz for 80s, 70Hz for 80s, 80Hz for 40s. In this course, if the high pressure lowers frequency, lowering frequency by discharge will quit initialization and they will run in their own ways respectively.

The diagram is as follows:


X1min
X2min
X3min
40S
DECLINE THE CAPACITY
INVERTER COMPRESSOR
OFF
ON
STATIC COMPRESSOR
OFF
OUTDOOR FAN
OFF
ON
OUTDOOR EEV
0pls
INITIALIZED FLUX X PLS
AUTOMATIC CONTROL
INDOOR EEV
0pls
INITIALIZED FLUX Y PLS
AUTOMATIC CONTROL
GAS BY-PASS VALVE
OFF
ON
OFF
DEPEND ON THE PRESSURE OF THE SYSTEM
4-WAY VALVE
ON/OFF
ON
30S
40S
60S
2'30S
1'30S

(3) Outdoor Fan Motor Control

The direct current inverter fan motor is adopted in the GMV-Pdhm system,the frequency of motor adjusts from 0 to 55Hz.

Specific Control Mode is as below:

1) Cooling Mode:

Initialization: Within 40s after the unit is started, set the initial fan frequency according to outdoor temperature. This is applicable when the unit is initially started.

①. After that, the fan frequency is adjusted according to pressure change. According to the average value of exhaust pressure, adjust the fan frequency every 40s to make the high pressure stabilize at [35°C, 41°C] and run according to the logic below:

Current frequency of outdoor fan = Original frequency + Variable frequency:

When the actual high pressure <45°C, then: variable frequency = (Corresponding temperature of actual high pressure – 45) x 1Hz;

When the actual high pressure >50°C, then: variable frequency = (Corresponding temperature of actual high pressure – 50) x 1Hz;

②. When Tamb. <25°C and the calculated variable frequency is over 5Hz, fan frequency will be limited in 5Hz.

③. For fan drive, 0Hz means stop of fan, 0-5Hz means running at 5Hz.

④. When fan stops, outdoor ambient temp will maintain the original

2) Total/Main Body Heating Mode

Initialization: The fan is started and enters into initial fan level according to ambient temperature and maintains it for 40s.

After startup of compressor, the fan frequency is adjusted per minute according to discharge pressure change to make the high pressure stabilize at the below range and run according to the logic below:

Current frequency of outdoor fan = Original frequency + Variable frequency:

When the actual high pressure <43°C, then: variable frequency = (43-Corresponding temperature of actual high pressure) x 1Hz;

When the actual high pressure >49°C, then: variable frequency = (49-Corresponding temperature of actual high pressure) x 1Hz;

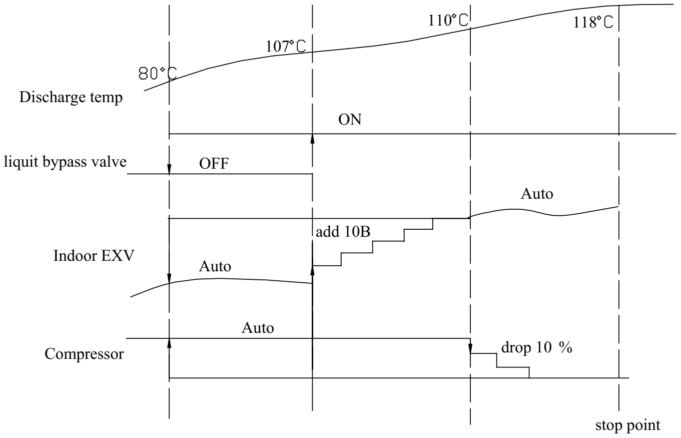
When 43°C≤Actual high pressure≤50°C, the existing frequency is maintained.

Before the startup of compressor, outdoor fan will ran at initial setting rate for 30s. When all compressors stop, outdoor fan will stop after successively running at current rate for 60s.

(4) Compressor Protection Function

1) High discharge temperature protection

Once the system detects the discharge temperature of any compressor overing 118°C at any conditions,the system stops immediately and send the protection code to indoor units.If the system stops over 3min and the discharge temperature is below 80°C,and the times of the discharge temperature protection in one hour is less than 6, the system is allowed restarting automatically, otherwise the system keeps stoping.



2) The high pressure protection

The GMV-Pdhm basic model has one high pressure sensor and one low pressure sensor,every compressor has one high pressure switch. High pressure switch and pressure sensor respectively connect with control panel of the outdoor unit by connecting wiring.

If the high pressure sensor detects that the high pressure of any basic model is≥61°C,the outdoor unit will stop immediately and send the protection code to indoor units, which will take into the account of the total high pressure protection times.If the system stops over 3min and the high pressure is below 52°C, the system will restart. If the high pressure protection are 3 times continuously detected in one hour(including detections for high pressure sensor and high pressure switch), the outdoor unit will stop and send “error”message to each indoor unit. Even though the deenergization protection emerges after 3min, the system will not restart and the users should ask for service man to check the air conditioner. The only way to clear high pressure protection is restart of the unit.

If the high pressure switch switchs off, (High pressure protection value is4.3Mpa), the system will stop immediately and send the protection code to indoor units. If the system stops over 3min and the high pressure is below 52°C, the system will restart. If the high pressure protection are 3 times continuously detected in one hour(including detections for high pressure sensor and high pressure switch), the outdoor unit will stop and send “error”message to each indoor unit. Even though the deenergization protection emerges after 3min, the system will not restart and the users should ask for service man to check the air conditioner. The only way to clear high pressure protection is restart of the unit.

3) The low pressure protection

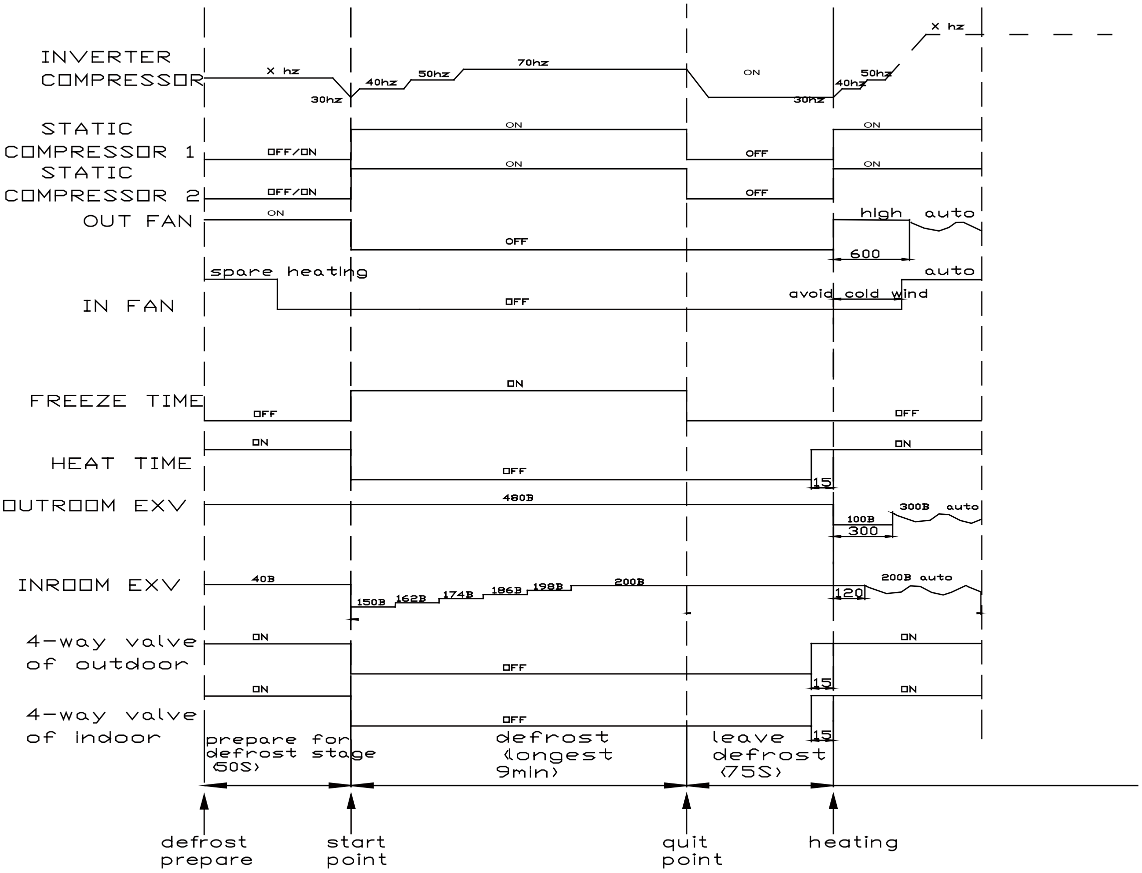
When the unit powers on, if it detects low pressure value is Ps≤-30°C, the low pressure protection signal will send out, or after all of compressor stop over 5min ,if the low pressure sensor detects the low pressure is below -30°C,the system send the low pressure protection to outdoor and indoor units,and the system is unallowable to start.

When the system is running, if the low pressure sensor detects that the low pressure of any basic model is below the protective value (reference to the chart) in continuously 30 seconds, the compressor will stop immediately and send the error code to indoor units. If the system stops over 3min and the low pressure is above the reparable value, the system will restart but if 2 times occur in one hour, the system will not allowed restarting, Users should ask for sevice men to check the air conditioner.

Outdoor Temperature TO		The Protective Value of Low pressure	The Reparable Value of Low pressure
Cooling	TO>0°C	-41°C	-6°C
	TO≤0°C		-19°C
Heating	TO>0°C	-41°C	-6°C
	TO≤0°C	-41°C	-19°C

(5) Defrosting Function

The flowchart of defrosting is as below:


INVERTER COMPRESSOR
x hz
30hz
40hz
50hz
70hz
ON
30hz
40hz
50hz
x hz
STATIC COMPRESSOR 1
OFF/ON
ON
OFF
ON
STATIC COMPRESSOR 2
OFF/ON
ON
OFF
ON
OUT FAN
ON
OFF
high
auto
600
IN FAN
spare heating
OFF
avoid cold wind
auto
FREEZE TIME
OFF
ON
OFF
HEAT TIME
ON
OFF
15
ON
OUTROOM EXV
480B
100B
300
300B auto
INROOM EXV
40B
150B
162B
174B
186B
198B
200B
120
200B auto
4-way valve of outdoor
ON
OFF
15
ON
4-way valve of indoor
ON
OFF
15
ON
prepare for defrost stage (50S)
defrost (longest 9min)
leave defrost (75S)
defrost prepare
start point
quit point
heating

3.2 Control Function of Indoor Unit

(1) Cooling Operation

1) Cooling

According to the capacity demand of the running indoor unit, the outdoor unit decides the frequency under which the compressor runs.

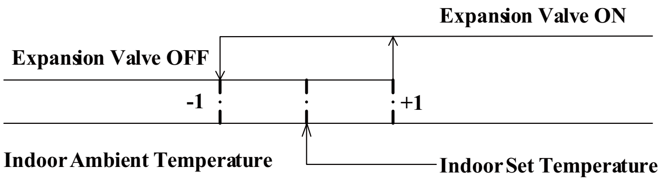
Control of the outdoor unit, the indoor unit decides the openness of the electronic expansion valve. The electronic expansion valve is set once every 40 seconds.

2) Temperature Control

Through the openness and close of the indoor electronic expansion valve, the indoor unit realizes the control to the temperature (refer to the following figure).

When the capacity demand of the indoor unit is 0, the electronic expansion valve closes.

When the capacity demand of the indoor unit is not 0, the electronic expansion valve opens.

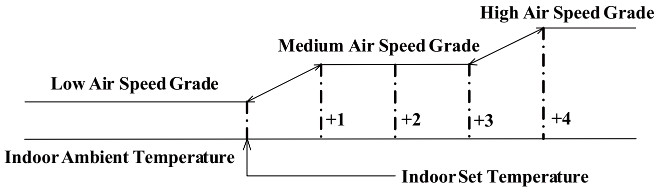

Expansion Valve ON
Expansion Valve OFF
-1
+1
Indoor Ambient Temperature
Indoor Set Temperature

If the indoor units of the same unit group all reach the temperature point, the demand of the unit group is 0, now the outdoor unit shall stop the operation of the compressor and the electronic expansion valve of the indoor unit closes.

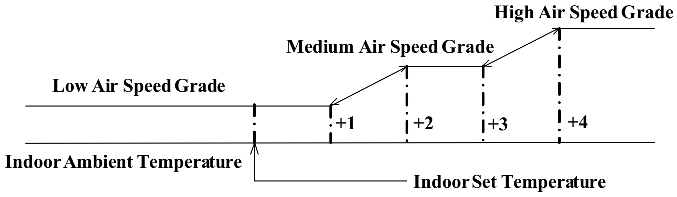
3) Indoor Fan Motor Action

When the indoor unit operates and the fan motor is not set at the automatic air speed grade, the indoor fan motor continues operating at the set air speed whether the capacity demand is 0.

When the indoor fan motor is set at the automatic air speed grade, the fan motor decides the fan motor air speed according to the change of ambient temperature indoors. Refer to the following figure:


High Air Speed Grade
Medium Air Speed Grade
Low Air Speed Grade
+1
+2
+3
+4
Indoor Ambient Temperature
Indoor Set Temperature

Automatic Air Speed Grade For Cooling (General)


High Air Speed Grade
Medium Air Speed Grade
Low Air Speed Grade
+1
+2
+3
+4
Indoor Ambient Temperature
Indoor Set Temperature

Automatic Air Speed Grade For Cooling(Linge Wind)

The switch under the automatic air speed grade is inspected once every 30 seconds

If the indoor fan motor stops before, the fan motor will start compulsory operation under high air speed grade for 5 seconds and then operates under set air speed.

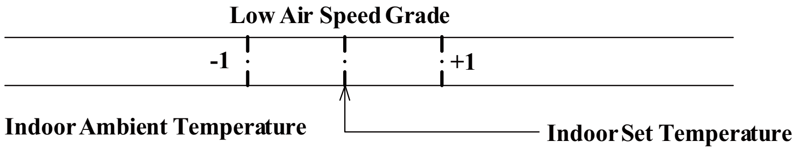
4) Control of Blowing off Residual Cold Air

When the indoor unit stops, the fan motor operates under set air speed or automatic air speed condition for 0-60 seconds.

When the capacity demand of the indoor unit is 0, the electronic expansion valve of the indoor unit closes and the fan motor continue operating under set air speed or automatic air speed condition.

(2) Dehumidifying Operation

When the unit operates under the dehumidifying mode, the indoor unit can only operates under the low air speed grade (regardless of the set air speed grade). Other actions are the same as that of the cooling operation. Please refer to the section of cooling operation.


Low Air Speed Grade
-1
+1
Indoor Ambient Temperature
Indoor Set Temperature

The indoor fan motor stops before, the fan motor will be started to carry out compulsory operation under high air speed grade for 5 seconds and then operates under set air speed.

(3) Heating Operation

1) Heating

According to the capacity demand of the running indoor unit, the outdoor unit decides the frequency under which the compressor runs.

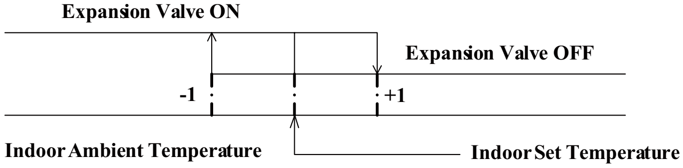
Control of the outdoor unit: The indoor unit decides the openness of the electronic expansion valve. The electronic expansion valve is set once every 40 seconds.

2) Temperature Control

Through the openness and close of the indoor electronic expansion valve, the indoor unit realizes the control of the temperature (refer to the following figure).

When the capacity demand of the indoor unit is 0, the electronic expansion valve closes.

When the capacity demand of the indoor unit is not 0, the electronic expansion valve opens.

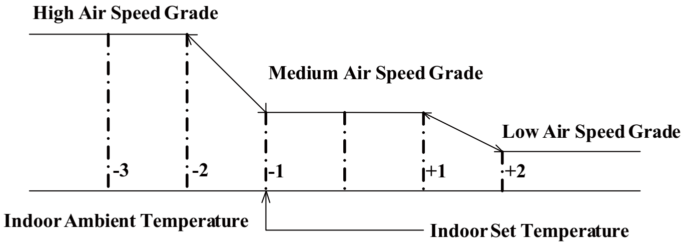

Expansion Valve ON
Expansion Valve OFF
-1
+1
Indoor Ambient Temperature
Indoor Set Temperature

3) Fan Motor Control

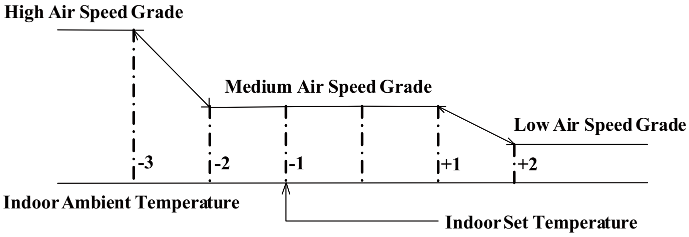
When the indoor unit has capacity demand.

If automatic air speed grade is not set, the fan motor of the indoor unit will operate under set air speed grade.

When the indoor fan motor is set at the automatic air speed grade, the fan motor decides the fan motor air speed according to the change of ambient temperature indoors. Refer to the following figure.


High Air Speed Grade
Medium Air Speed Grade
Low Air Speed Grade
-3
-2
-1
+1
+2
Indoor Ambient Temperature
Indoor Set Temperature

Automatic Air Speed Grade For Heating (General)


High Air Speed Grade
Medium Air Speed Grade
Low Air Speed Grade
-3
-2
-1
+1
+2
Indoor Ambient Temperature
Indoor Set Temperature

Automatic Air Speed Grade For Heating (Linge Wind)

The switch under the automatic air speed grade is inspected once every 30 seconds.

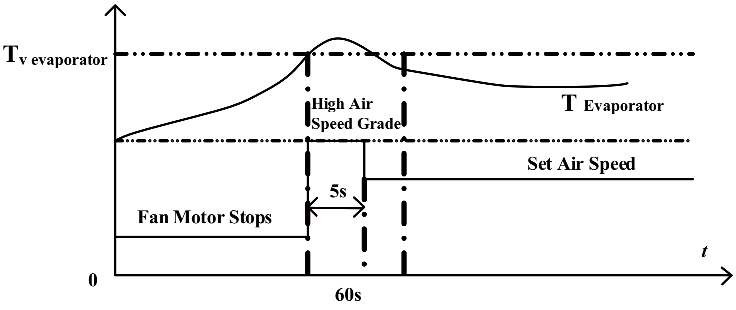
The indoor fan motor stops before, the fan motor will start compulsory operation under high air speed grade for 5 seconds and then operates under set air speed.

4) Operation of Preventing Cold Air

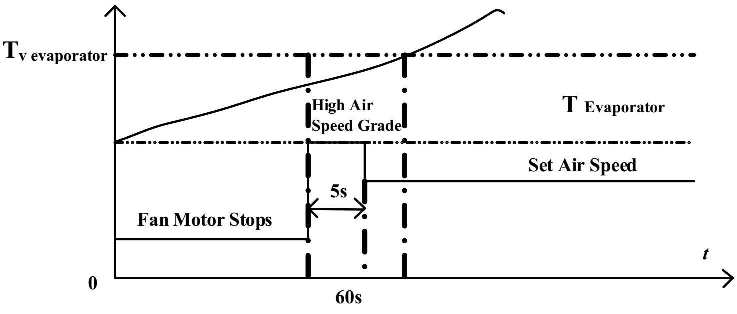
When the indoor unit has capacity demand, the indoor fan motor will be compulsorily turned to close status and operate under the following conditions:

If the evaporator temperature (tevaporator) of the indoor unit reaches the threshold Tv evaporator, the indoor fan motor will carry out compulsory operation under high air speed grade for 5 seconds and then operates under set air speed; If the evaporator temperature (tevaporator) of the indoor unit still does not reach the threshold Tv evaporator 1 minute later, the indoor fan motor will carry out compulsory operation under high air speed grade for 5 seconds and then operates under set air speed; Refer to the following figure.

Cold Air Prevention threshold Tv evaporator Table (°C)	Model	Cassette and Air Duct Series	Wall Mounted Unit Series
	Tv evaporator	35	39



T Evaporator Reaching Threshold Within 1 Minute



T Evaporator Not Reaching Threshold Within 1 Minute

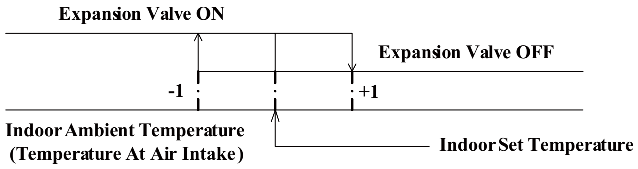
After the indoor unit starts heating operation and the fan motor stops for any reason (including unit starting, defrosting, failure and no demand capacity), the operation of preventing cold air is carried out before the fan motor starts again.

After the indoor fan motor starts, the operation of preventing cold air is not carried out even if the tevaporator is less than the threshold Tv evaporator again, except the fan motor stops.

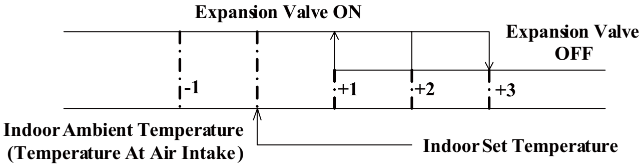
(4) Heating Temperature Compensation

When the air-conditioner operates under standard conditions, the unit group adjusts the capacity output of the indoor unit according to the set temperature and the air inlet temperature, so as to adjust the room temperature to the set temperature. If the installation height of the air-conditioner is somewhat high, the hot air tends to rise to the upper space when heating operation is carried out, which is the result of difference of density. Now the temperature of the living space may not reach the set temperature so people may feel uncomfortable.

Therefore, it is required to use the temperature compensation function during heating: the air inlet temperature minus 2°C is adopted to reflect the real temperature of the living space. Using this method, comfortable temperature will be maintained in the living space.



Temperature Adjustment Under Standard Conditions



Temperature Adjustment With Temperature Compensation

(5) Anti-Frosting Control under Cooling and Dehumidifying Modes

To prevent the frosting as a result of low temperature of the evaporator during the operation of cooling or dehumidifying of the indoor unit from bringing adverse effect to the cooling efficiency, the indoor unit will carry out anti-frosting operation when necessary.

If it is detected that the evaporator inlet pipe temperature T Inlet is ≤ T Frosting Temperature for TAnti-frosting minutes after the compressor operates for T Compressor minutes under the modes of cooling or dehumidifying, the anti-frosting operation will be carried out and now the indoor fan motor and the swing motor remain the original status; When the T Inlet is ≥ T Recovery Temperature, the indicating light is off and the controller will operate under set mode.

The parameters T Compressor , T Anti-frosting , T Frosting Temperature ,and T Recovery Temperatureare different for different unit models. Refer to the following table:

Unit Model	T Compressor(m)	T Anti-frosting(m)	T Frosting Temperature(°C)	T Recovery Temperature(°C)
Duct Cassette Series	15	10	-4	15
Wall Mount Series	6	3	0	10

(6) Automatic Swing Control

The wall mount series and the cassette series indoor units have swing function. Using swing function can increase air convection indoors to increase the uniformity of the indoor temperature.

♦ Reset

When the unit is powered on for the first time, the swing louvers will swing automatically once to let the swing louver return to the initial position, thus the correctness of the swing louver action is ensured.

♦ Using the keys on the indoor unit to turn on the unit

When using the keys on the indoor unit to turn on the unit, the default automatic swing will be started and the swing louvers swing back and forth from the maximum location and the minimum location (for different modes, the maximum locations and the minimum locations are different).

♦ Using wire controller or remote controller to control

When using the wire controller or the remote controller to turn on the unit and the automatic swing signal is not set then, the swing louvers will stop at the default position when the unit is turned on (for different modes, the default locations are different). If the automatic swing signal is set when the unit is turned on, the automatic swing will be started and the swing louvers swing back and forth from the maximum location and the minimum location (for different modes, the maximum locations and the minimum locations are different).

3) Control of Subcooling Degree during Heating Operation

During the process of heating, the unit group shall control the open degree of the electronic expansion valve of the indoor unit according to the fact that how the difference between the inlet temperature and the outlet temperature is deviated from the set superheat degree. The purpose is to keep proper subcooling degree and the detection is carried out every 40 seconds. When the unit is turned off, the operation of the unit is stopped when the set temperature is reached, there is any failure or defrosting is carried out, this control process is ended.

(9) Sensor Inspection Control

♦ Ambient Temp. Sensor

When it is detected that the ambient temperature is continuously lower than -20°C for 1 minute or is continuously higher than 100°C for 1 minute, the signal of ambient temp. sensor failure (failure code: F0) is sent and the indoor unit stops operation because of abnormality.

If it is detected that the ambient temperature is continuously larger than -20°C but lower than 100°C for 1 minute under the status of ambient temp. sensor failure, the signal of ambient temp. sensor failure is removed and the indoor unit resumes the original operating status.

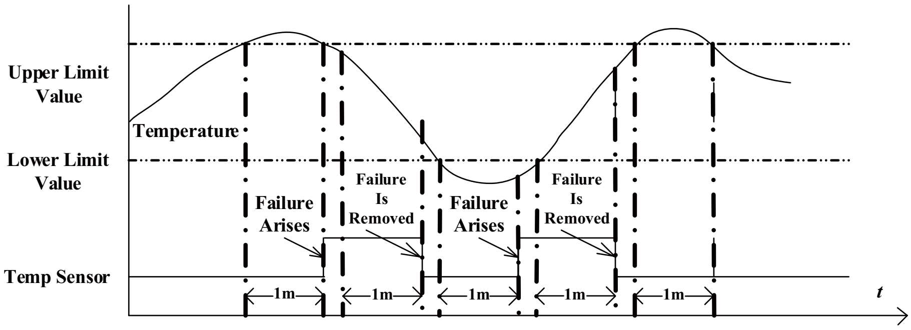
♦ Evaporator Tube Temp. Sensor

When it is detected that the evaporator tube temperature is continuously lower than -30°C for 1 minute or is continuously higher than 100°C for 1 minute, the signal of evaporator tube temp. sensor failure is sent and the indoor unit stops operation because of the abnormality.

If it is detected that the evaporator tube temperature is continuously larger than -20°C but lower than 100°C for 1 minute under the status of evaporator tube temp. sensor failure, the signal of evaporator tube temp. sensor failure is removed and the indoor unit resumes the original operating status.

♦ All the detection time is not counted.

Failure Type	Failure Code
Indoor Ambient Temp. Sensor Failure	F0
Indoor Inlet Pipe Temp. Sensor Failure	F1
Indoor Intermediate Pipe Temp. Sensor Failure	F2
Indoor Outlet Pipe Temp. Sensor Failure	F2



(10) Address Code Setting

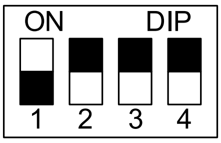
Each indoor unit of the same group can only operate normally if it is assigned only one address. Therefore, the address of the indoor units must be set properly.

Different indoor units of the same group must have different address.

Each group of indoor units has 16 different addresses at most.

The address of every indoor unit must be identical with the address of the corresponding wire controller.

Use the address DIP switches to set the addresses for the indoor units and the wire controller. The DIP switches are located at the main boards of the indoor unit and the wire controller and have be marked with “Address”.



Refer to the following table for the addresses designated by the DIP switch position status combinations.

DIP Switch Position Status Combinations (4-position DIP Switch)				
Position 4	Position 3	Position 2	Position 1	Address Designation
ON	ON	ON	ON	1
ON	ON	ON	OFF	2
ON	ON	OFF	ON	3
ON	ON	OFF	OFF	4
ON	OFF	ON	ON	5
ON	OFF	ON	OFF	6
ON	OFF	OFF	ON	7
ON	OFF	OFF	OFF	8
OFF	ON	ON	ON	9
OFF	ON	ON	OFF	10
OFF	ON	OFF	ON	11
OFF	ON	OFF	OFF	12
OFF	OFF	ON	ON	13
OFF	OFF	ON	OFF	14
OFF	OFF	OFF	ON	15
OFF	OFF	OFF	OFF	16

(11) Function Code Setting

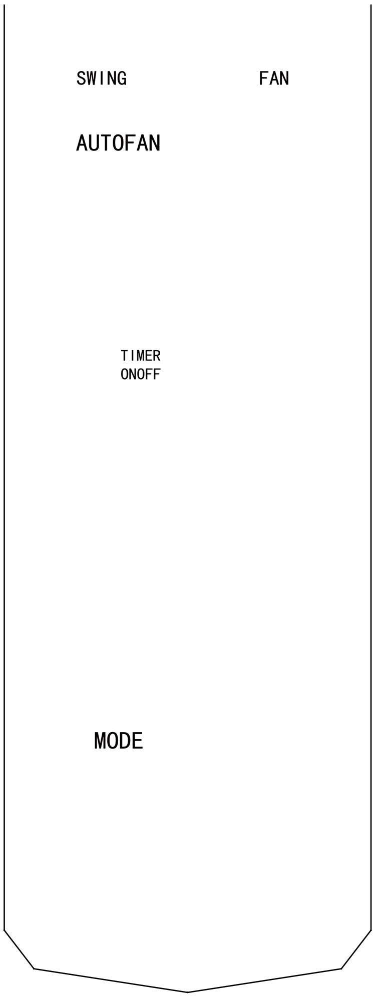
♦ Before power on of the main board, 4-bit dial switch must be set to decide running status of indoor unit.

♦ Function description is as below:

4 WIRELESS REMOTE CONTROLLER

NOTE!

- Make sure that there is no obstruction between the remote control and the signal receptor.
- The remote control signal can be received at the distance of up to about 10m.
- Don’t drop or throw the remote control.
- Don’t let any liquid flow into the remote control.
- Don’t put the remote control directly under the sunlight or any place where is very hot.



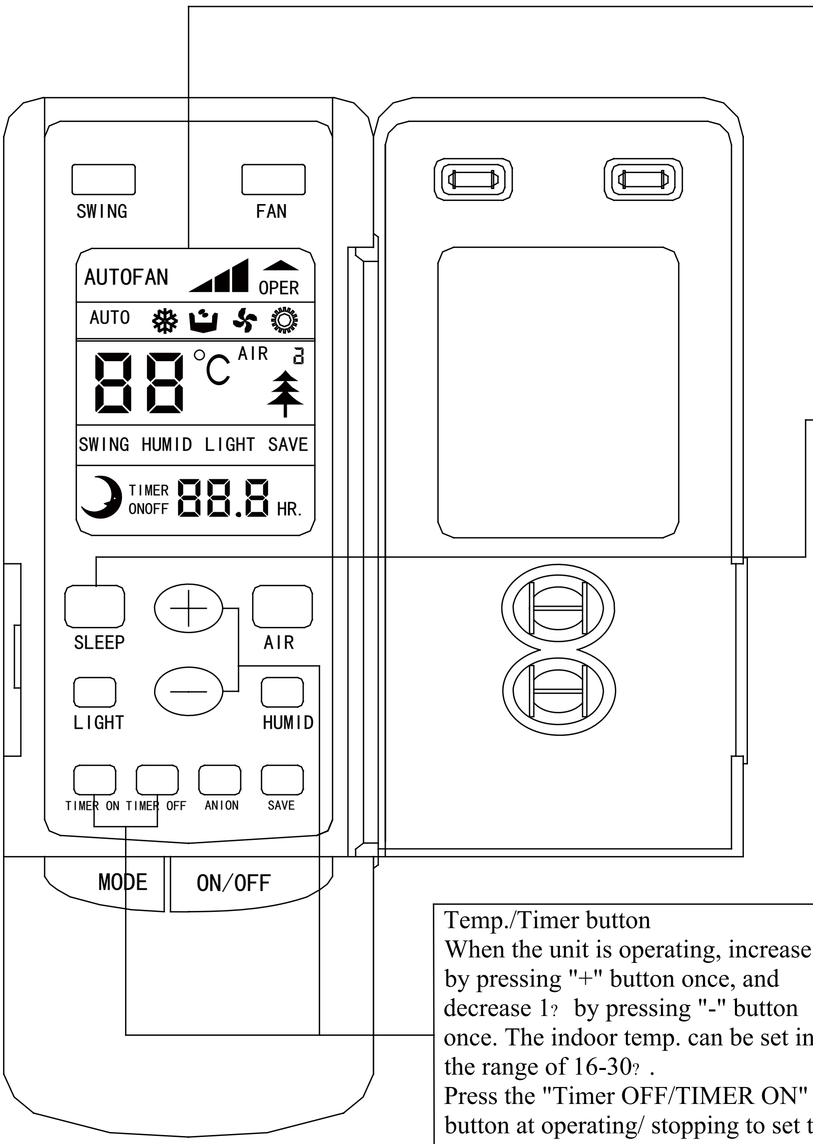
Press the button to change the speed of the fan according to the following order.

AUTO FAN →

COOL
DRY
FAN
HEAT

ON/OFF button
Press the button to turn on the unit. Press the button once again to turn off the unit and cancal the timer.

NOTE: The cooling only



Liquid crystal displayer
It shows all set contents.

SLEEP button
Press the button to set SLEEP mode, and stop when repressed. When the sleep mode is in the cool and dry mode, the set temp. will increases 1~2? during the set time, then the unit will operate according to the temp.. When sleep mode is in the heat mode, the set temp. decreases 1~2? during the set time, then the unit will operate according to the set temp..

Temp./Timer button
When the unit is operating, increase 1? by pressing "+" button once, and decrease 1? by pressing "-" button once. The indoor temp. can be set in the range of 16-30? .
Press the "Timer OFF/TIMER ON" button at operating/ stopping to set the off/on time. Press "Timer OFF/TIMER ON" once to increase 0.5 hour for the set time. The Max.value of setting time could be 24 hours，when repressed it the setting time will be canceled.

Operation procedure

Normal procedure

1. Press ON/OFF button after energization, then the unit is operating.
2. Press MODE button to choose the need operation mode.
3. Press FAN button to set the fan speed.
4. Press +/- button to set the need temp.

Selectable procedure

5. Press SLEEP mode to set the sleep state.
6. Press TIMER OFF button to set the set time.

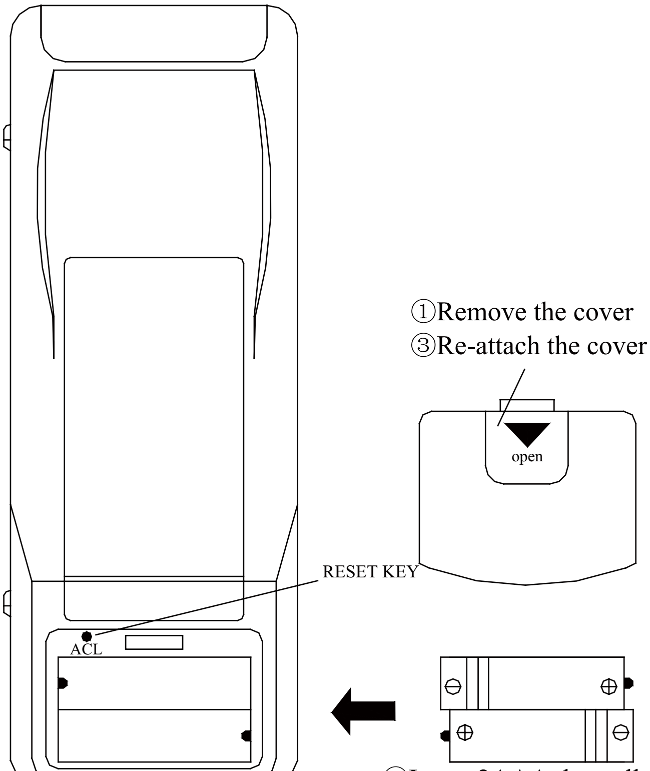
Note: When the operating mode selected by the indoor unit clashes with the one selected by the outdoor unit, the remote controller will display the operating clash after 5 seconds and the power light will flicker, then the indoor unit turns off. At this time, the units will become normal after the operating mode of the indoor unit is changed to cooperate with the outdoor unit. Cool mode can cooperate with dry mode, and fan mode can cooperate with any mode.

How to insert batteries

Two batteries (Two AAA dry-cell batteries) are used by the remote control

1. Remote the cover from the back of the remote control downward, take out the worn batteries and insert two new ones (Make sure the two poles are correct)

2. Re-attach the cover.



①Remove the cover
③Re-attach the cover

②Insert 2AAA dry-cell battaries(attachment)

1.All the prints and code no. will be showed on the displayer after the insert of batteries. The remote control can be operated after 10sec.
2.The lifetime of the batteries is about one year.
3.Don't confuse the new and worn or different types of batteries.
4.Remove batteries when the remote control is not in use for a longtime to avoid mal-function caused by liquid leakage.
5.The remote control should be placed about 1m or more from the TV set or any other electric appliances.
6.The remote control should be used in the receivable range (the reception range is 10m)
7.When the remote control can not be controlled in the situation of inserted batteries, please remove the back cover and press "ACL" button to make it normal.

5 WIRED REMOTE CONTROLLER

5.1 Operation and Display View

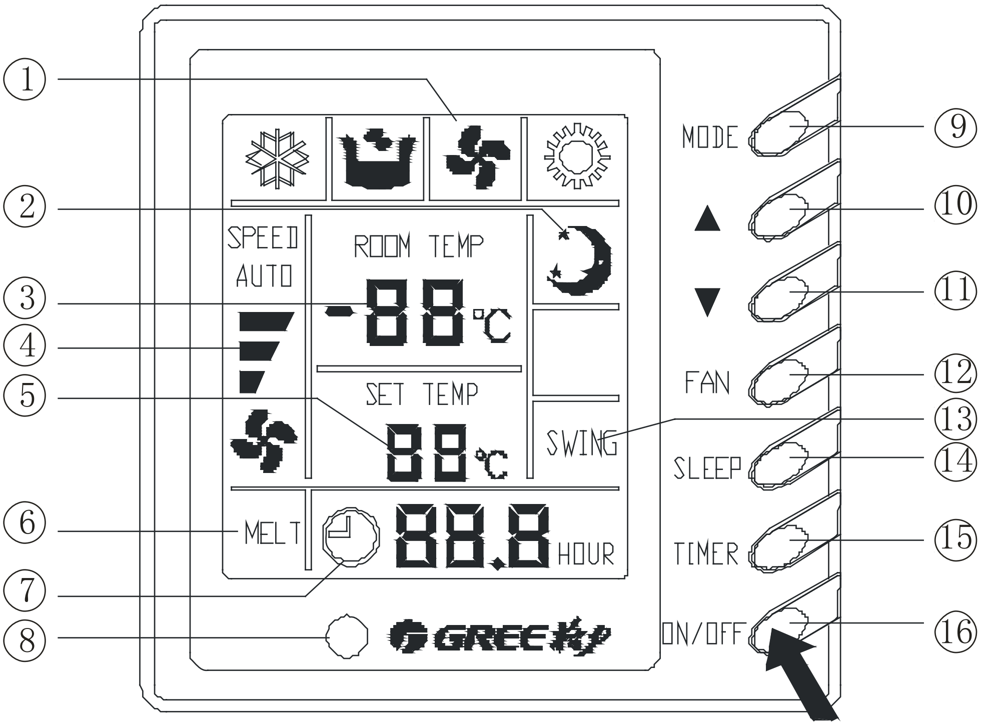


Fig 5.1

NOTE:This type of wired controller is applicable to the multi VRF duct type indoor unit, while for the cassette type and the wall-mounted it is the one without the "Fan" function".

Various Components of Wired Remote Controller	
1	Operating mode display (Cool, Dry, Fan, Heat)
2	Sleep mode display
3	Environmental temp. display /Malfunction display
4	Fan control display (automatic, high, media, low)
5	Set Temp. display
6	Defrosting display
7	Timer display
8	Signal receptor
9	On/Off button
10	Timer button
11	Sleep button
12	Swing display
13	Fan control button
14	Temp./ Timer decrease button
15	Temp./ Timer increase button
16	Mode button

5.2 Dimension

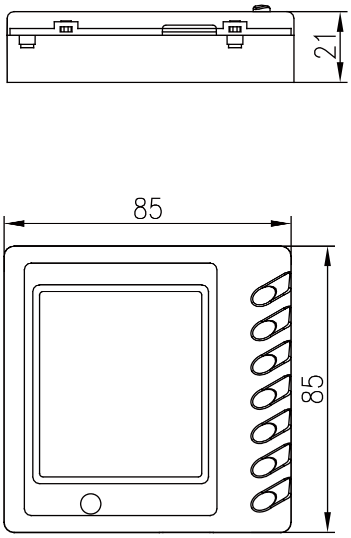


Fig.5.2.1 Outline Dimension of Wired Controller

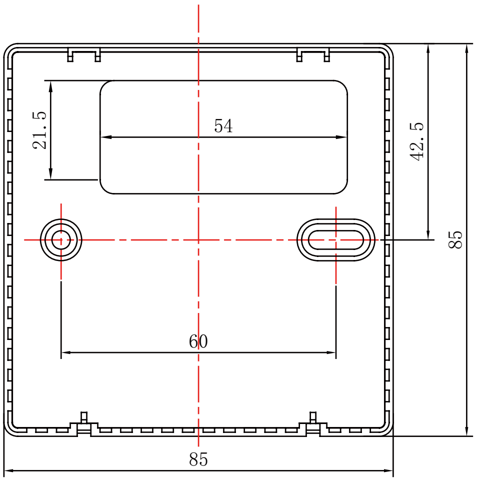


Fig.5.2.2 Installation Dimension of Wired Controller

5.3 Installation

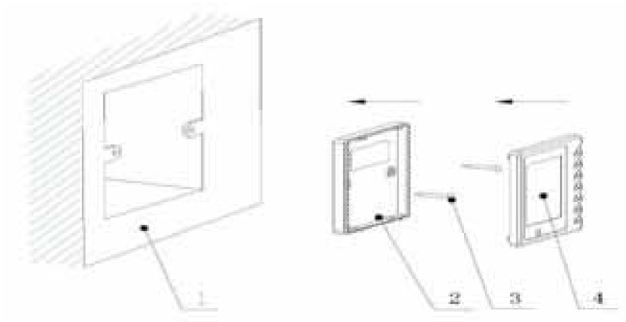


Fig.5.3.1 Installation of wire remote controller

NO.	1	2	3	4
Name	Wall-box	Controller soleplate	ScrewsM4X25	Controller panel

●Notice for installation under the guidance of Fig.5.3

1. Cut off power supply before install the electrical components, it is forbidden to carry out the installation with power on;
2. Get one end of the 4 core communication cable, put it through the rectangular hole on the base board on the wire remote controller;
3. hold the base board of controller on the wall, then fix it to the wall with M4x25 screw;
4. Plug the 4 core communication cable into the slot on the wired remote controller, then fix the controller panel with base board together.

6 REGION CONTROLLER

6.1 Function

Region monitoring control and region wired control are the two main control functions for Mini Centralized Controller.

Region monitoring controller can monitor or control 16 indoor units of a group for inquiry and single or centralized control.

Region wired controller can replace 1-16 selected wired controllers to uniformly set or control the indoor units.

Refer to Fig.6.1, Fig.6.1 about the Sketch map to the relationship among the Mini Centralized Controllers, region monitoring controller and region wired controller.

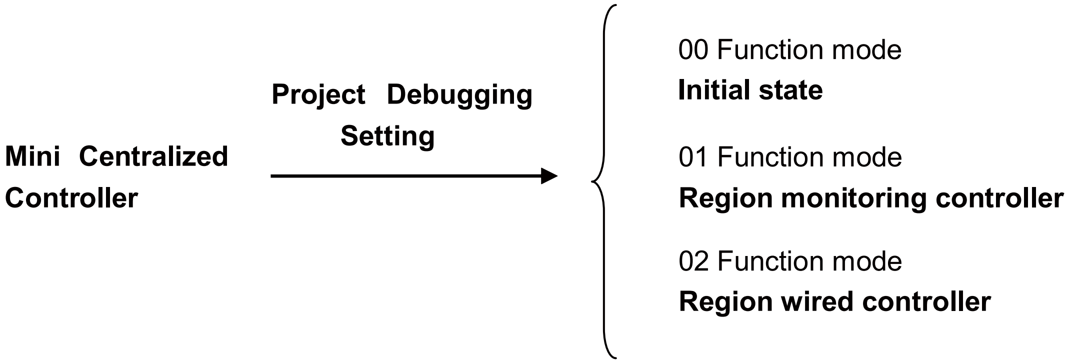
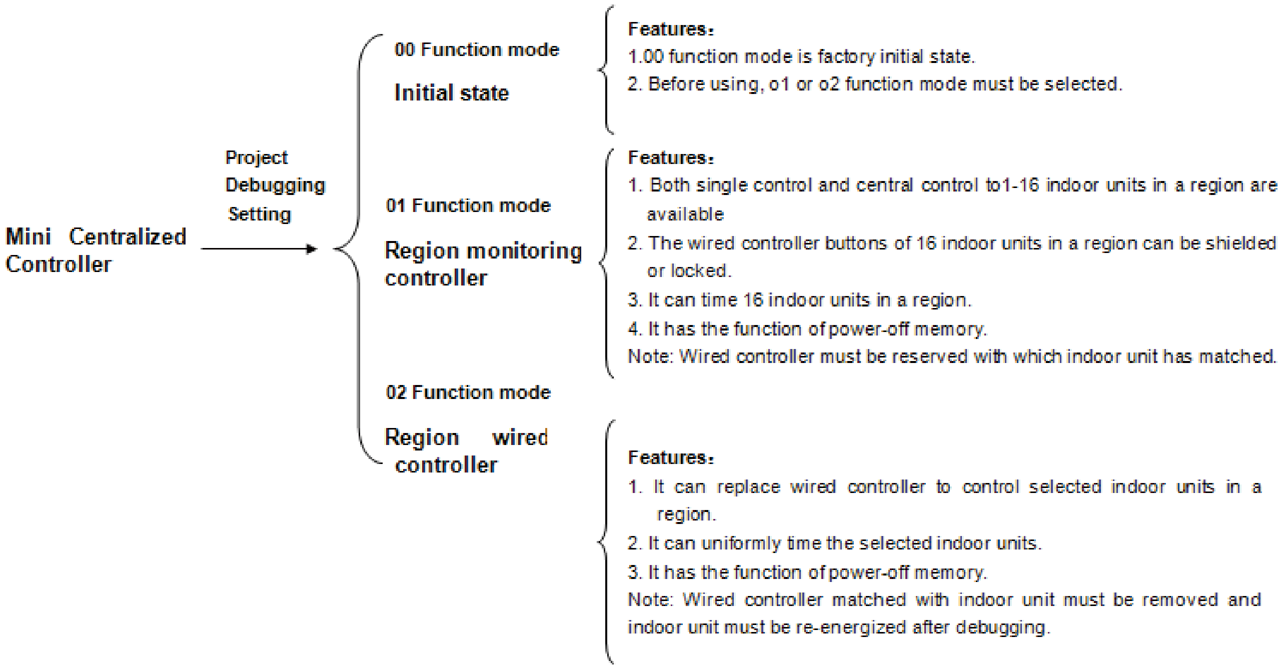


Fig.6.1.1

Before using, the controller functions must be selected by the personnel who performance the installation with the requirements of users. Please refer to Project Debugging Setting section for the details.

Note: If the controller is set to be region wired controller, the wired controller of the selected indoor unit must be removed.

The Mini Centralized Controller can be matched with long-distance monitor. As a region monitoring controller, its control is subject to that of the long-distance monitor. In the same group, one of the Mini Centralized Controllers can be used as region monitoring controller and matches one or more region wired controller which replace(s) one or more wired controller, in which case, the region monitoring controller can also monitor or control the region wired controller.


Mini Centralized Controller
Project Debugging Setting
00 Function mode
Initial state
01 Function mode
Region monitoring controller
02 Function mode
Region wired controller

Features:
1.00 function mode is factory initial state.
2. Before using, o1 or o2 function mode must be selected.

Features:
1. Both single control and central control to1-16 indoor units in a region are available
2. The wired controller buttons of 16 indoor units in a region can be shielded or locked.
3. It can time 16 indoor units in a region.
4. It has the function of power-off memory.
Note: Wired controller must be reserved with which indoor unit has matched.

Features:
1. It can replace wired controller to control selected indoor units in a region.
2. It can uniformly time the selected indoor units.
3. It has the function of power-off memory.
Note: Wired controller matched with indoor unit must be removed and indoor unit must be re-energized after debugging.

Fig.6.1.2

Fig.6.1.2 Sketch map to the relation among the Mini Centralized Controller, region monitoring controller and region wired controller

6.2 Operation View

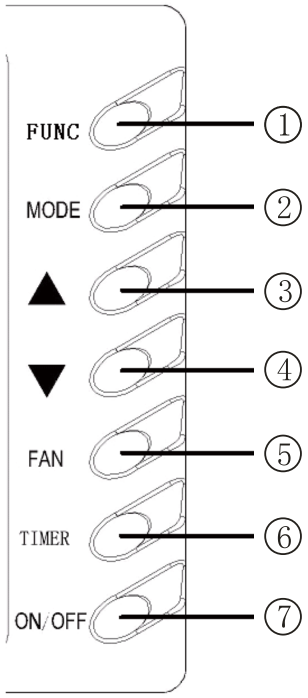

FUNC
MODE
▲
▼
FAN
TIMER
ON/OFF
①
②
③
④
⑤
⑥
⑦

Fig.6.2.1

No.	Name	Function
1	FUNC (FUNCTION)	A. Switch the control mode of inquiry/single/ central control. B. In central control status, give the central order by successively pressing FUNC button.
2	MODE	Set cooling/heating/fan/dry mode for indoor unit
3	▲	A. Inquiry status: cycle, increase or decrease No. of indoor units to easily inquire the status of each indoor unit. B. Single/Central control status: set running temp. of indoor unit, maximum is 30°C and minimum is 16°C. C. Timer setting status: increase or decrease the timer on/off time, maximum is 24hr and minimum is 0.
4	▼	
5	FAN	A. Set the indoor fan speed of hi/mid/low/auto. B. Successively press FAN button to set on/off swing.
6	TIMER	A. Under single/central control mode, set on /off timer of selected indoor unit B. Under inquiry status, inquire the timer setting of the indoor unit with current address.
7	ON/OFF	Set ON/OFF of the indoor unit.
2MODE and 7 ON/OFF	Lock	Under single/central control, press MODE and ON/OFF buttons simultaneously to start/ stop the lock of operation to buttons of wired controller for selected indoor units.
2MODE and 6 TIMER	Shield mode	Under single/central control, press MODE and TIMER simultaneously to start/ stop the shield of operation to MODE button of wired controller for selected indoor unit.
4 ▼and 6 TIMER	Shielding Temp.	Under single/central control, press ▼ and TIMER simultaneously to start/ stop the shield of operation to Temp button of wired controller for selected indoor unit.
7 ON/OFF and 6 TIMER	Shielding ON/OFF	Under single/central control, press ON/OFF and TIMER simultaneously to start/ stop the shield of operation to ON/OFF button of wired controller for selected indoor unit.
2 MODE and 3 ▲	Memory mode	Refer to **power-off** memory function about the details.
4 ▼and 7 ON/OFF	Selection of function	A. Check the control mode of region monitoring controller / region wired controller B. Set the control mode of region monitoring controller / region wired controller

Note:

a. The characters with gray back ground indicate buttons. Following part is the same to it.
b. The time of single press of the button is more than 3s, which means successively-press.
c. There isn‘t the function that the region wired controller shields other indoor wired controller.

6.3 Display View

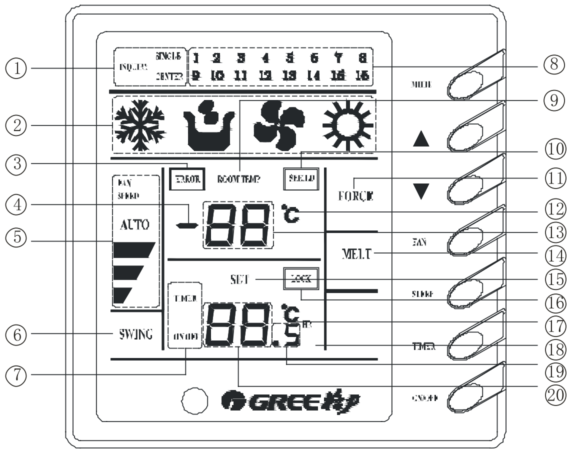


Fig.6.3.1

No.	Display name	Instruction to display
1	Control mode	Inquiry state, "INQUIRY" is displayed. Single control state," SINGLE" is displayed. Centralized control state, "CENTER" is displayed.
2	Running mode	Each indoor unit running mode is displayed.
3	Error	"ERROR" is displayed during any malfunction to indoor or outdoor unit in a group.
4	-	"- " is displayed when there is no malfunction to selected indoor unit and the ambient temp. is below zero.
5	Fan speed display	Hi, mid, low or auto speed of indoor fan is displayed.
6	Swing	Swing running of indoor unit is displayed.
7	Timer	"TIMER ON/OFF" is displayed when setting timer or inquiring timer state.
8	No. of indoor unit	Under inquiry state, No. of online indoor units are displayed and No. of selected indoor unit will blink. Under single control state, only No. of selected indoor unit is displayed. Under centralized state, No. of all online indoor units are displayed.
9	Room temp.	"ROOMTEMP" is displayed for no malfunction, but isn't for malfunction.
10	Shield	Centralized controller A. Under inquiry state," SHIELD" will be displayed when selected indoor unit is shielded. B. Under control state," SHIELD" will be displayed during setting or giving the shield order. Region wired controller:" SHIELD" will be displayed when selected units are shielded during long-distance monitoring.
11	Force	"FORCE" is displayed when indoor unit is forced to run.
12	°C (room temp.)	"°C" is displayed when there is no malfunction.
13	Room temp. or error code	Room temp. value is displayed during no malfunction to selected indoor or outdoor unit. Error code is displayed during malfunction to selected indoor or outdoor unit.
14	Melt	"Melt" is displayed during defrosting.
15	Lock	Region monitoring controller A: Inquiry state: "LOCK" is displayed when selected indoor unit is locked. B: Control state: "LOCK" is displayed during setting or giving the lock order. Region wired controller: "LOCK" is displayed when selected unit is locked in long-distance monitoring.
16	Set	"SET" blinks when the unit is on and commanded. "SET" is displayed when the unit is on without command.
17	°C (set temp.)	Set temp. value is displayed when the selected indoor unit is on and not in timer inquiry or setting status.
18	HR (hour)	"HR" is displayed during timer inquiry or setting.
19	.5	".5" is displayed when the timer time value includes 0.5 hr and the unit is during timer inquiry or setting.
20	Setting temp. and timer time	During timer inquiry, integer of setting time of timer is displayed. During timer setting, integer of setting time of timer is displayed. Set temp. value is displayed when the unit is not during timer inquiry or setting.

Note:

a. Contents in the double quotation marks indicate the display in LCD. Following part is the same to it.
b. Online indoor units to Mini Centralized Controller indicate that in a region. Following part is the same to it.
c. No signal control function for region wired controller, and "SINGLE" won't be displayed either.

6.4 Connection Between Controller and Unit

Insert the 4-core twisted pair line to wired controller, if which is with the indoor unit, into mini centralized controller (region controller) wiring terminal CN1 (or CN2), and then connect the other wiring terminal CN2 (or CN1) with the main board of indoor unit.

If there is no wired controller with indoor unit, introduce a 4-core twisted pair line to indoor unit main board and connect it with mini centralized controller (region controller) wiring terminal CN1 (or CN2).

Note:Any main board of the indoor unit controlled by the mini centralized controller (region controller) can be connected. If the mini centralized controller (region controller) is used as a region wired controller, wired controller with the indoor unit must be removed.

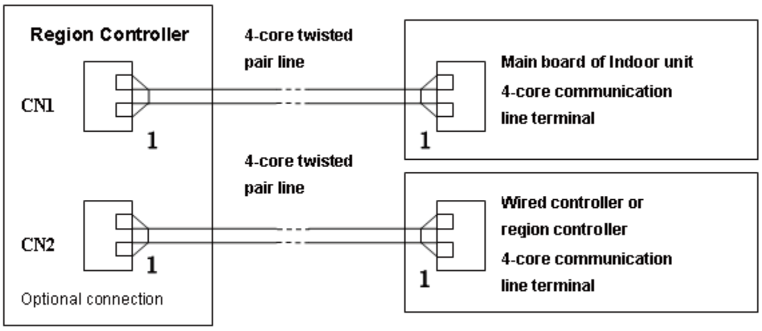

Region Controller
CN1
1
CN2
1
Optional connection
4-core twisted pair line
4-core twisted pair line
1
Main board of Indoor unit
4-core communication line terminal
1
Wired controller or region controller
4-core communication line terminal

Fig.19 Power cords and communication lines for mini centralized controller (region controller)

Before installation and connection, make sure the power supply is off. After installation and connection, check the connection result again to prevent loose or short.

There are 4 connection lines (included in the 4-core twisted pair line) to the controller, from CN1 or the upper and right CN2 to the upper they respectively are: Ground line (GND), communication line A (A), communication line B (B) and power cord (+12 V).

⚠ Note:

During following connection of wirings, pay special attention to them to avoid malfunction to units for electromagnetic interference.

a. Keep the signal lines or wirings (communication) of mini centralized controller (region controller) or wired controller at least 20 cm from the power cords or connecting lines between indoors and outdoors to prevent abnormal communication.

b. Shielding twisted pair line must be adopted as signal line or wiring (communication) once the unit is installed in the place where there is serious electromagnetic interference.

7 CENTRALIZED CONTROLLER (OLD)

7.1 Function

Main characteristics of Centralized Controller:

♦ A set of Centralized Controller can control 64 communication modules and can connect to as much as 1024 indoor units. It can conduct individual control with any separated area or unified control. It can monitor or control On/Off, Mode, Temperature setting and Timer On/Off of indoor unit etc.

♦ It can realize the central, single or select control to all indoor units.

♦ It can organize several indoor units into groups as you desired and conduct unified control—Group select control.

♦ Error contents are shown by codes. Corresponding communication module numbers of the indoor units with error contents would blink for rapid inspection and repair (There is sound warning for a few errors).

♦ Timer function. Every indoor unit can set Timer On/Off time by central, single or select control. Both Timer On time and Timer Off time can be set at the same time, and it is available to set the timer to which day among the 7 days from Sunday to Saturday works.

♦ Clock function displays in year, month, day, hour, minute and week, and the clock can be manually adjusted.

♦ Indoor and outdoor units online auto detect, display and working state indication.

♦ Self-inspection function is remained.

♦ Centralized Controller and several communication modules formed communication net, the length of communication wire of the net can be as long as 1km (without using communication repeaters).

7.2 Operation View

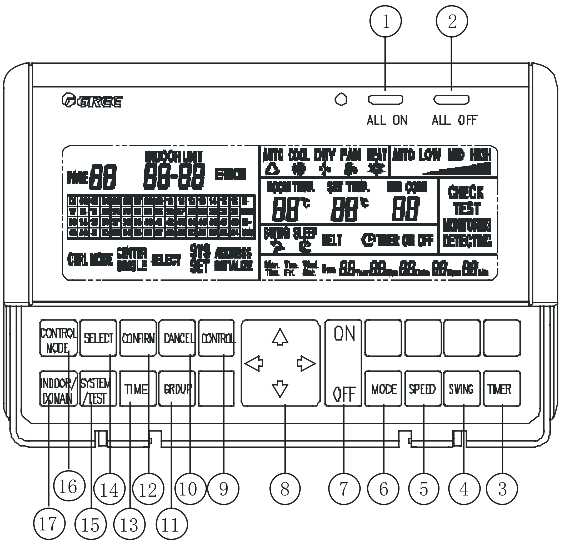


Fig.7.2.1

1	ALL ON	This central control has Sequence On function, that enables conduction to sequence control to communication modular in interval of 2 seconds, communication modular controls Sequence On of indoor units (to lower impact to power network).
2	ALL OFF	This central control has Sequence Off function, that enables conduction of sequence control to communication modular in interval of 2 seconds, communication module controls Sequence Off of indoor units (to lower impact to power network).
3	MODE	Set modes of Cool, Dry, Fan or Heat for indoor unit
4	ON/OFF (2)	For controlling units' on and off.
5	TIMER	Set and check the time of Timer On and Timer Off of indoor unit and date mode.
6	SWING	Set if indoor unit swings
7	SPEED	Set fan speeds of High, Medium, Low or Auto for indoor unit
8	LEFT/RIGHT UP/DOWN	It works as direction and adjusting under every operation function. Such as: When checking, it can move to the required indoor unit or communication modular by using this button; when adjusting time, press LEFT (/RIGHT) to shift "Y/M/D" etc. and press UP (/DOWN) to adjust value
9	CONTROL	Under control mode, press this button after setting state of indoor unit, control to indoor unit would be conducted by corresponding control mode.
10	CANCEL	Press this button during process of setting function to exit the already made function setting operation. Such as, if central control mode were selected, press CANCEL at this time would back to control mode selecting state.
11	GROUP	Press button under checking state to begin information check and set of grouped indoor unit, grouped information is for select control.
12	CONFIRM	Confirm the operated operation is effective
13	TIME	Set system time
14	SELECT	Select required control or setting object; repress the button to the object is to cancel.
15	SYSTEM/TEST	Begin setting of central control run mode, it is not recommended to be used by users.

16	CONTROL MODE	Begin control setting mode, and Central Control, Select Control and Single Control can be selected. Central Control: Control all indoor units under domain by present set state. Single Control: Control present indoor unit by present set state. Select Control: Control selected indoor unit by present set state, it also called grouped control
17	INDOOR / DOMAIN	Shift display domain and indoor wired air condition control. **DOMAIN** corresponding to display on line communication modular, **INDOOR** corresponding to display on line indoor control.

7.3 Display View

Sketch for LCD part:

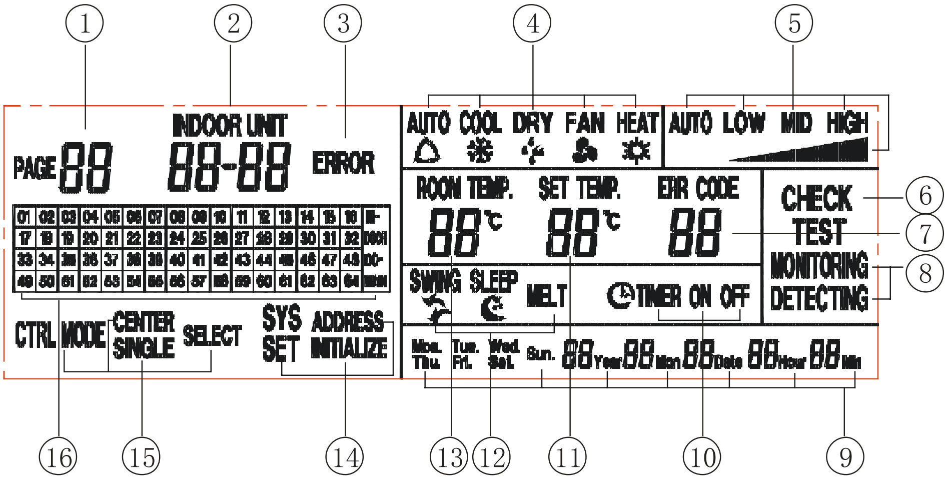

①
②
③
④
⑤
PAGE 88
INDOOR UNIT
88-88
ERROR
AUTO COOL DRY FAN HEAT
AUTO LOW MID HIGH
ROOM TEMP.
SET TEMP.
ERR CODE
88℃
88℃
88
CHECK
TEST
MONITORING
DETECTING
⑥
⑦
⑧
SWING SLEEP
MELT
TIMER ON OFF
CTRL MODE
CENTER
SINGLE
SELECT
SYS ADDRESS
SET INITIALIZE
Mon. Tue. Wed. Thu. Fri. Sat. Sun.
88 Year 88 Mon 88 Date 88 Hour 88 Min
⑯
⑮
⑭
⑬
⑫
⑪
⑩
⑨

Fig. 7.3.1

1	Pagination/displays present domain	Under select control mode, **group no.** that is present controlling is displayed; Under addresses setting state, present Soft Add is displayed.
2	Present unit no.	Displays the soft address of communication module that the present checking or controlling indoor unit is belonged as well as the address of indoor unit; Format: Soft add—Indoor unit add
3	Error	Displays when there is error at any indoor or outdoor unit.
4	Operation mode	Displays every operation state mode of indoor unit
5	Speed display	Displays High, Medium, Low and Auto speed of indoor unit
6	Check	Under group control mode, it is displayed when checking grouping information; Under address setting mode, it is displayed when checking hard address.
7	Operation monitoring and controlling / monitoring	When central control works in normal, operation monitoring displays; when control signal is transmitted, operation monitoring and controlling is displayed.
8	Error code	Displays when abnormal occur on operation state of present indoor unit.
9	System time	Displays present time, format is Y, M, D, H, M and week.
10	Timer setting	**Timer On/Off o**n when Timer On/Off is set to present indoor unit
11	Pre-set temperature	Displays value of pre-set temperature
12	Ambient temperature	Displays value of ambient temperature of present indoor unit
13	Swing and Defrost	Displays operation of swing at indoor unit and defrost at outdoor unit
14	System setting	Setting operation mode of central control. It should be completed by installation personnel, but not for users.
15	Control mode	Displays 3 control modes of Central, Single and Select controls

16	Displays of soft address	When Indoor on, addresses of present online indoor unit is displayed; When domain on, soft address of present online communication module is displayed; Specific location of controlled indoor unit can only be ascertained when soft address fits Project Installation List.

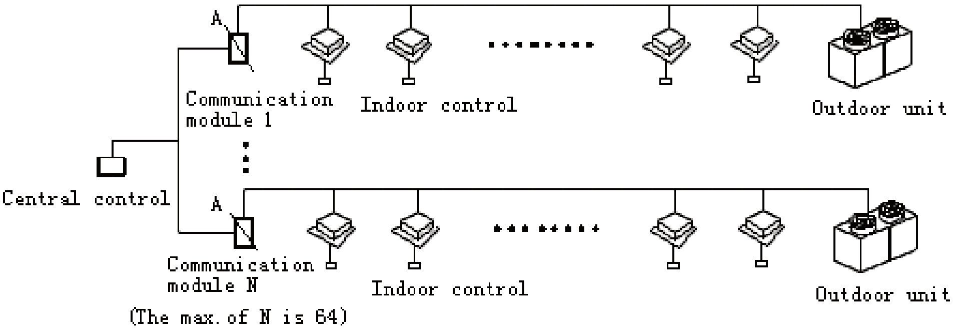
Instruction to display interface:

System Setting: Including Address Setting and other functions, and it is set when installation personnel are adjusting units. It is not recommended that users operate it. The usage of this function requires password.

Address Setting: Since characters from 01 to 64 are fixed as the addresses of controlling communication modules displayed by central control (hereinafter called soft addresses), and the addresses of communication modules themselves (hereinafter called hard addresses) are value from 0~254, thus there is address matching problem between central control and controlled communication module. In order to solve this problem, address mapping setting is required to be conducted before project adjusting!

7.4 Connection between Controller and Unit

The following is a brief sketch of communication net of multi variable units:

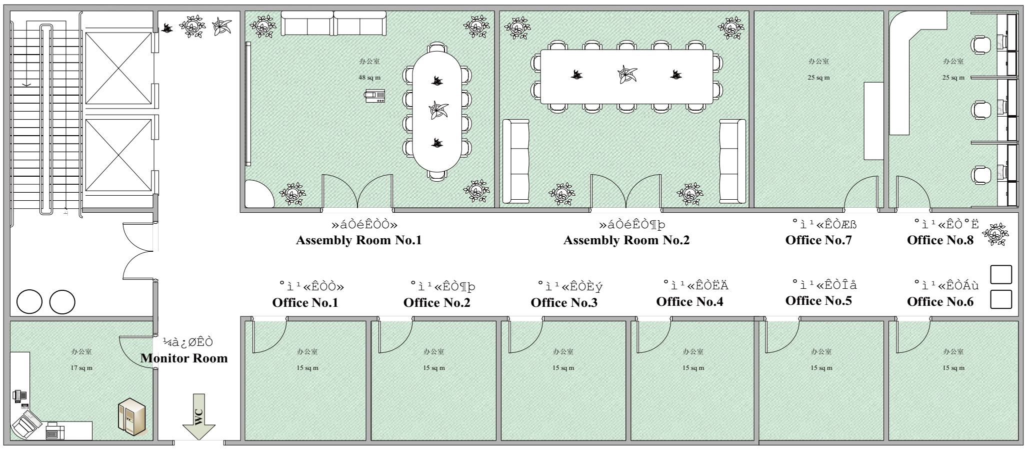

A
Communication module 1
Indoor control
Outdoor unit
Central control
A
Communication module N
Indoor control
Outdoor unit
(The max. of N is 64)

As shown in figure, the ”\” at A are parting lines for communication net. Left side of the “\” is the communication net between central control and communication module while the right side is that between multi variable outdoor unit and indoor units. The 2 nets are individual nets.

Before normal use of central control, do conduct addresses setting and adjusting to communication system by installation personnel. Only after that can the central control offered to be used by user.

7.5 Case Study

Take one floor of an office building for example to illustrate wiring and debugging of the centralized control system. In this floor, there are 2 assembly rooms, 8 offices and 1 monitor room. Refer to the following illustration for its plane structure.

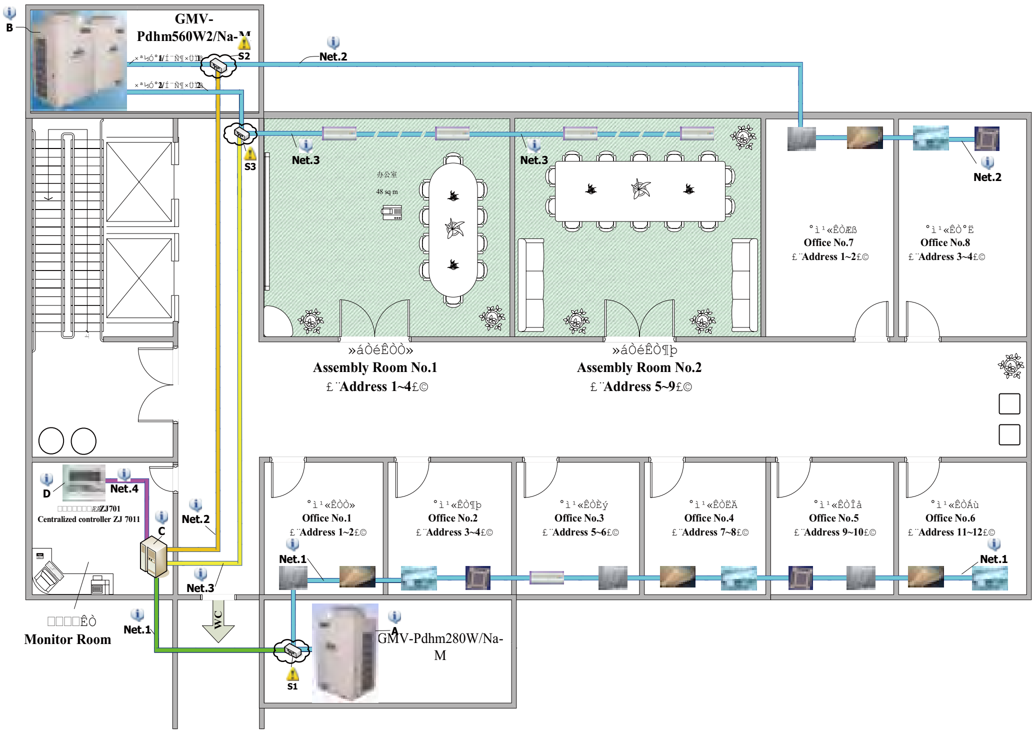

Assembly Room No.1
Assembly Room No.2
Office No.7
Office No.8
Office No.1
Office No.2
Office No.3
Office No.4
Office No.5
Office No.6
Monitor Room
WC

(1) Instruction to Distribution of Unit and Installation of Equipment

This office building has been installed with 2 sets of GMV-Pdhm units, as shown in the table below.

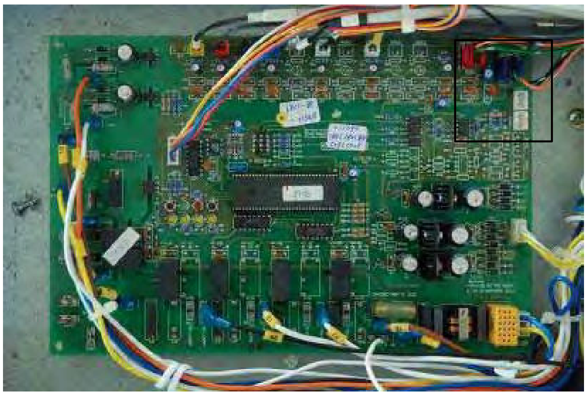
Name	Models	Quantity of required communication modules (pinboard)	Quantity of indoor units	Corresponding rooms of indoor units		
Unit1	GMV-Pdhm 280W/Na-M	1(0)	12	Room	Address of communication module	Address of indoor unit
				Office 1	01	1,2
				Office 2		3,4
				Office 3		5,6
				Office 4		7,8
				Office 5		9,10
				Office 6		11,12
Unit 2	GMV-Pdhm 560W2/Na-M	2(2)	20	Room	Address of communication module	Address of indoor unit
				Office 7	02	1,2
				Office 8		3,4
				Assembly room 1	03	1,2,3,4
				Assembly room 2		5,6,7,8

(2) Frame Diagram of System Net


B
GMV-Pdhm560W2/Na-M
S2
Net.2
S3
Net.3
48 sq m
Net.3
Net.2
Office No.7
Address 1~2
Office No.8
Address 3~4
Assembly Room No.1
Address 1~4
Assembly Room No.2
Address 5~9
D
Net.4
ZJ701
Centralized controller ZJ 7011
C
Net.2
Net.3
Office No.1
Address 1~2
Office No.2
Address 3~4
Office No.3
Address 5~6
Office No.4
Address 7~8
Office No.5
Address 9~10
Office No.6
Address 11~12
Net.1
Net.1
Monitor Room
Net.1
WC
S1
A
GMV-Pdhm280W/Na-M

Instruction to Frame Diagram of System Net

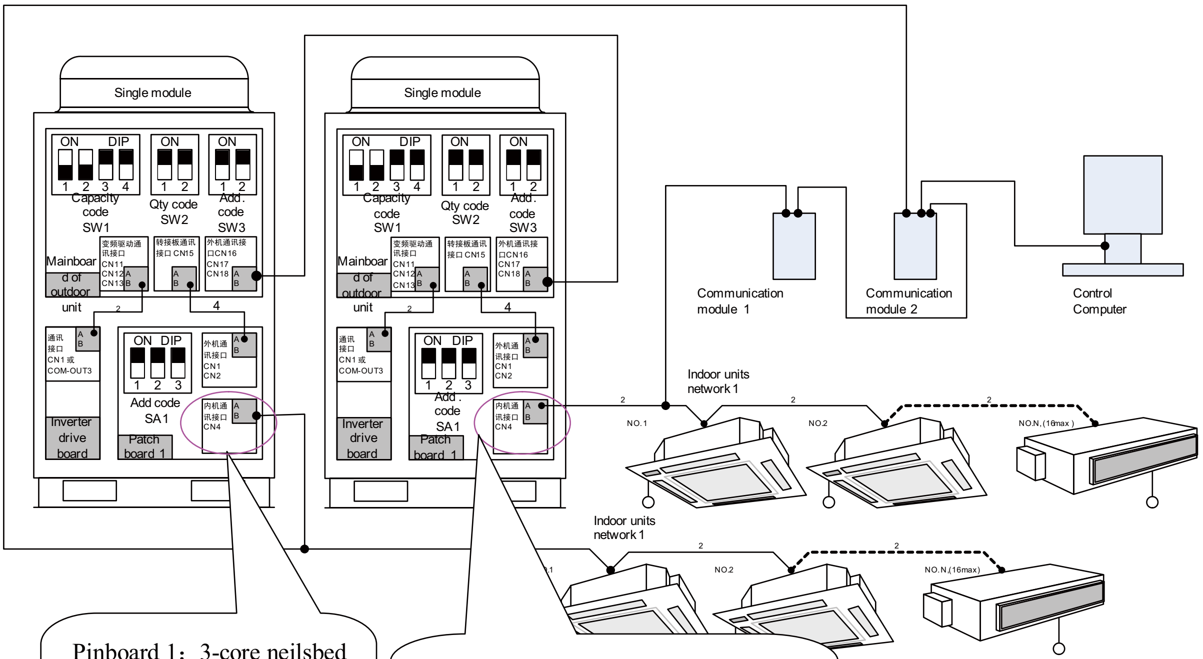
Mark A:Outdoor Unit GMV-Pdhm280W/Na-M can be connected with up to 16 indoor units. In this project, this outdoor unit is connected with the communication module with address of 01 and indoor units (address 01~12)of office 1-6, corresponding with independent communication Net.2. The mainboard of outdoor unit is as follow:



3-core neilsbed connects with indoor unit or communication module.

Mark B: Outdoor Unit GMV-Pdhm560W2/Na-M can be connected with up to 32 indoor units by two pinboards ,either of which can connect with up to 16 indoor units . What's more, the quantity of communication modules used is the same as that of pinboards.

In this project, pinboard 1 is connected with the communication module with address of 02 and indoor units (address 01~04) of office 7-8, corresponding with independent communication Net.2. Pinboard 2 is connected with communication module of address 03 and indoor units (address 01~08) of office 1-2, corresponding with independent communication Net.3. The outdoor figure is as follow:


Single module
ON DIP
1 2 3 4
Capacity code SW1
ON
1 2
Qty code SW2
ON
1 2
Add. code SW3
Mainboard of outdoor unit
变频驱动通讯接口 CN11 CN12 CN13
转接板通讯接口 CN15
外机通讯接口CN16 CN17 CN18
A B
2
4
通讯接口 CN1 或 COM-OUT3
ON DIP
1 2 3
Add code SA1
外机通讯接口 CN1 CN2
内机通讯接口 CN4
Inverter drive board
Patch board 1
Single module
Patch board 1
Communication module 1
Communication module 2
Control Computer
Indoor units network 1
NO.1
NO.2
NO.N.(16max)
Indoor units network 1
NO.2
NO.N.(16max)

Pinboard 1：3-core neilsbed connects with indoor unit or modules

Pinboard 2：3-core neilsbed connects with indoor unit or communication module

Mark C: Centralized controller cabinet is mainly used to put communication modules together. Refer to Section 3 Instruction to Installation Procedure of System about its figure and connection method of communication modules.

Mark D: Centralized Controller ZJ701. For the first use of it, address mapping setting must be made to specify addresses of communication modules which should be controlled. In this project example there are 3 communication modules with the address of 01, 02 and 03 which are displayed in the centralized controller correspondingly.

Mark S1, S2, and S3: Telephone 3-way triple adapters are used to connect communication modules with communicating net of indoor and outdoor units. Refer to Section 3 Instruction to Installation Procedure of System for its connection method.

(3) Instruction to Installation Procedure of System

● Step 1: Integral Design of the Whole System.

In consideration of features of building and installation of the unit, the building is divided into a lot of monitoring regions and then confirm required systems, their quantity and installation locations. As for this example:

A. Division of monitoring regions: According to needs of the users, the whole floor is divided into 3 monitoring regions, south area (office 1-6), north area (assembly room1-2 and office 7-8) and monitor room.

B. Confirmation of quantity of systems

Name	Qty	Installation Location	Notes
Communication modules	3	Centralized control cabinet	The quantity required for the pinboards is the same as communication modules. If no pinboard, only one module is needed. So, there should be 3 modules in total.
Centralized control cabinet	1	Monitor room	Installed indoors according to user’s conditions.
Centralized controller	1	Monitor room	Installed indoors

- Step 2: Wiring and Installation

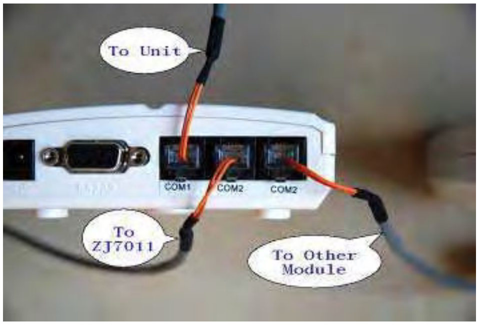
A. Centralized controller as extension function of GMV unit can be installed and debugged after communication connection between outdoor unit and indoor unit and normal operation of the unit.

B. Make of centralized control cabinet

If a lot of communication modules are used, centralized control cabinet is recommended. Heavy current wires and communication lines should be wired separately. The distance between them should keep above 15cm.The following figure is an example of centralized control cabinet, but its design should be according to quantity of communication modules.

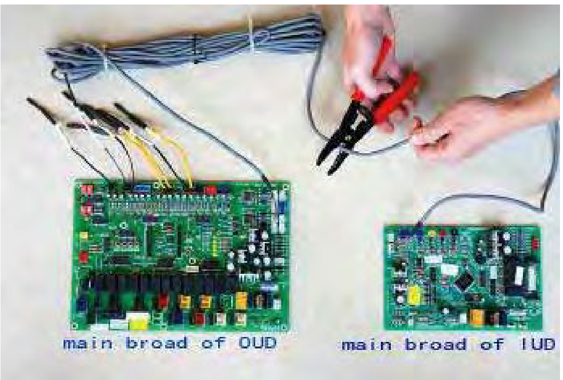
C. Connection of communication modules

COM 1 of communication module can connect with indoor and outdoor unit. The two COM2 can connect with other communication module or centralized controller. As shown in the following figure:

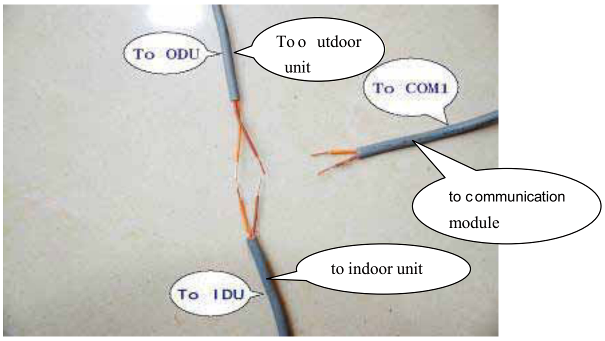


D. Connection between communication module and indoor and outdoor units

According to the net diagram, connect the communication line between indoor unit and outdoor unit. Then cut off the communication line between the mainboards of indoor unit and outdoor unit, as shown below.


main broad of OUD
main broad of IUD

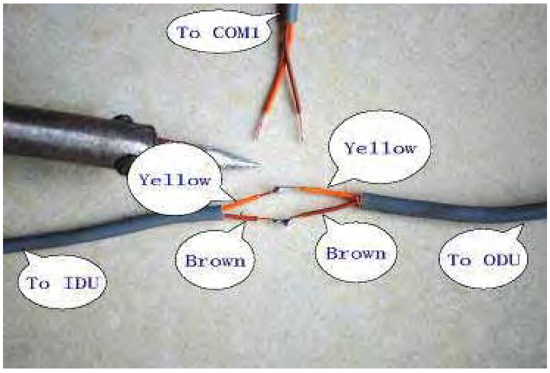
Align the cutting terminals and terminals of communication line to COM1, as shown below:


To ODU
To o utdoor unit
To COM1
to communication module
to indoor unit
To IDU

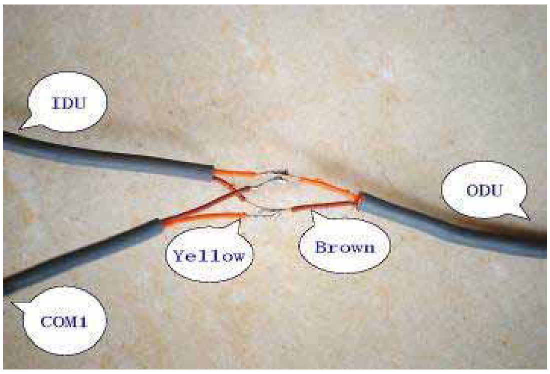
In this case, there are two methods to connection of them.

Method 1: Welding

Weld the two cutting terminals by yellow to yellow and brown to brown, as shown below:


To COM1
Yellow
Yellow
Brown
Brown
To ODU
To IDU

And then weld the terminals of communication line to COM1 with the welding spots in the above figure together by yellow wire to brown wire, as shown below:

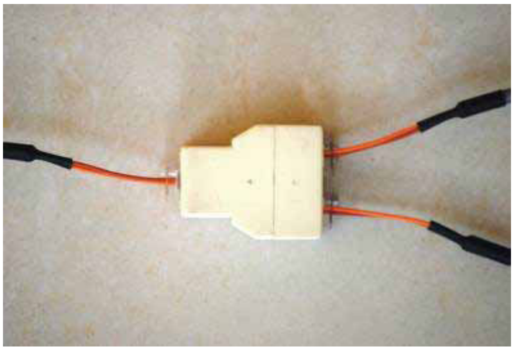

IDU
ODU
Yellow
Brown
COM1

At last, wrap the welding spots with insulating tape and test conduction performance of the three communication lines, as shown below:

Method 2: Triple adapter

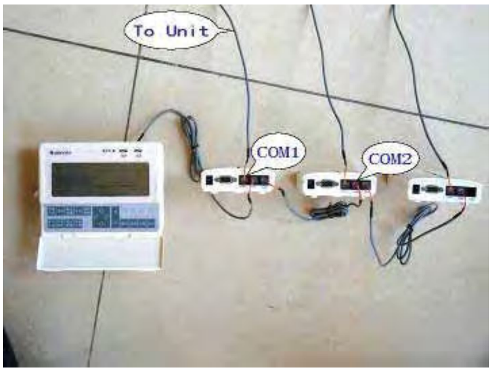
Make crystal heads for the three lines. The connection direction should be the sameas in the above welding figures, i.e. yellow to yellow and brown to brown wire of indoor and outdoor units, but yellow to brown wire of communication line to COM1.The crystal heads are as follow:

Insert the three crystal heads into the triple adopter and test conduction performance of them, as shown below:



E. Connection of Communication Modules and Centralized Controller

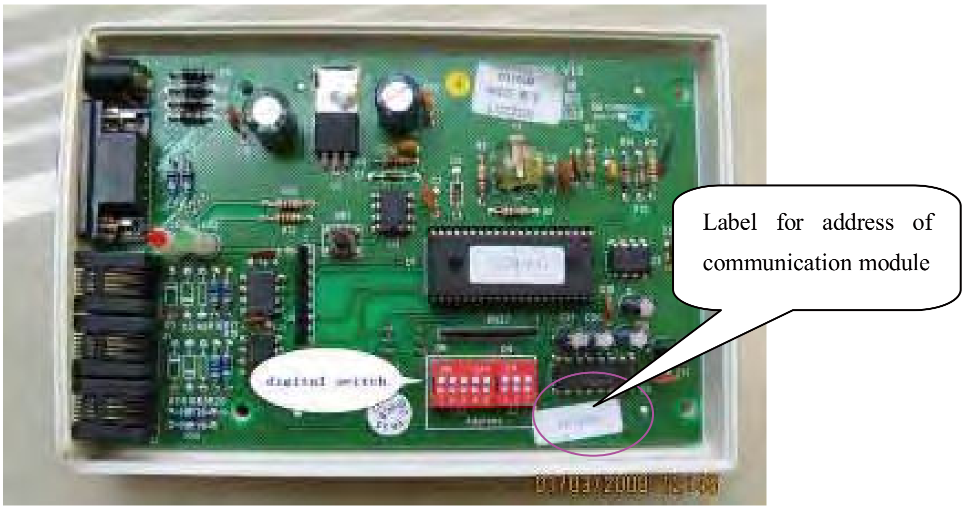
Connection of COM1 of communication module which has 3 COM in total has been introduced as the above. COM2 can connect with another communication module or centralized controller, as shown below:



Note: The above figure is only for reference to relation among the equipments. The actual wiring is subject to the above frame diagram of system

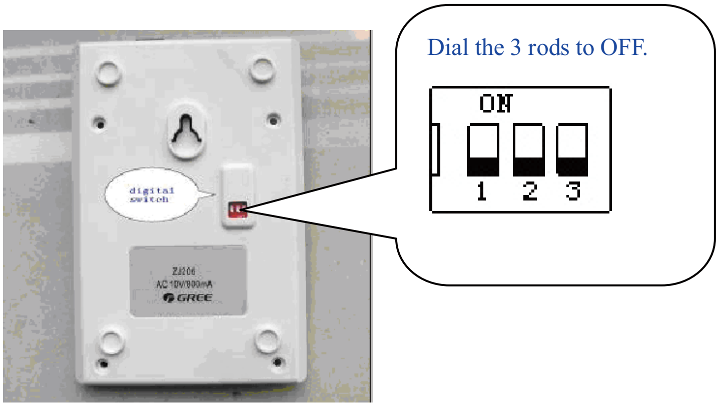
- Step 3: There are two methods of DIP address setting of communication module

Method 1: The address of each communication module has been fixed in the factory and marked on the label at the back of it. It is unnecessary for users to set anything. In addition, the 3-D.C inverter DIP can not be dialed to OFF completely, as shown below:


digital switch
Label for address of communication module
01/03/2008 12:48

Method 2: Manual setting of address, as operated the following:

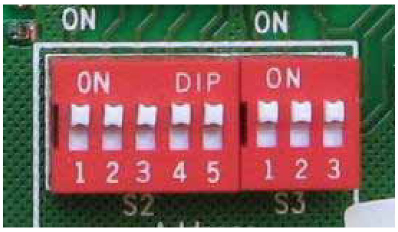
1. Dial the D.C inverter switch at the back of communication module to OFF completely, as below:


Dial the 3 rods to OFF.
digital switch
ON
1 2 3
ZJ206
AC 10V/800mA
GREE

2.Open the cover of communication module as below:

digital switch
01/03/2008 12:48

The 8-D.C inverter DIP is as below:


ON
ON
ON
DIP
1 2 3 4 5
S2
ON
1 2 3
S3

Set DIP for address according to the following table.

Address from 0 to 31								Address	Address from 32 to 63								Address
DIP S2					DIP S3				DIP S2					DIP S3			
1	2	3	4	5	1	2	3		1	2	3	4	5	1	2	3	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	32
1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	33
0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	34
1	1	0	0	0	0	0	0	3	1	1	0	0	0	1	0	0	35
0	0	1	0	0	0	0	0	4	0	0	1	0	0	1	0	0	36
1	0	1	0	0	0	0	0	5	1	0	1	0	0	1	0	0	37
0	1	1	0	0	0	0	0	6	0	1	1	0	0	1	0	0	38
1	1	1	0	0	0	0	0	7	1	1	1	0	0	1	0	0	39
0	0	0	1	0	0	0	0	8	0	0	0	1	0	1	0	0	40
1	0	0	1	0	0	0	0	9	1	0	0	1	0	1	0	0	41
0	1	0	1	0	0	0	0	10	0	1	0	1	0	1	0	0	42
1	1	0	1	0	0	0	0	11	1	1	0	1	0	1	0	0	43
0	0	1	1	0	0	0	0	12	0	0	1	1	0	1	0	0	44
1	0	1	1	0	0	0	0	13	1	0	1	1	0	1	0	0	45
0	1	1	1	0	0	0	0	14	0	1	1	1	0	1	0	0	46
1	1	1	1	0	0	0	0	15	1	1	1	1	0	1	0	0	47
0	0	0	0	1	0	0	0	16	0	0	0	0	1	1	0	0	48
1	0	0	0	1	0	0	0	17	1	0	0	0	1	1	0	0	49
0	1	0	0	1	0	0	0	18	0	1	0	0	1	1	0	0	50
1	1	0	0	1	0	0	0	19	1	1	0	0	1	1	0	0	51
0	0	1	0	1	0	0	0	20	0	0	1	0	1	1	0	0	52
1	0	1	0	1	0	0	0	21	1	0	1	0	1	1	0	0	53
0	1	1	0	1	0	0	0	22	0	1	1	0	1	1	0	0	54
1	1	1	0	1	0	0	0	23	1	1	1	0	1	1	0	0	55
0	0	0	1	1	0	0	0	24	0	0	0	1	1	1	0	0	56
1	0	0	1	1	0	0	0	25	1	0	0	1	1	1	0	0	57
0	1	0	1	1	0	0	0	26	0	1	0	1	1	1	0	0	58
1	1	0	1	1	0	0	0	27	1	1	0	1	1	1	0	0	59
0	0	1	1	1	0	0	0	28	0	0	1	1	1	1	0	0	60
1	0	1	1	1	0	0	0	29	1	0	1	1	1	1	0	0	61
0	1	1	1	1	0	0	0	30	0	1	1	1	1	1	0	0	62
1	1	1	1	1	0	0	0	31	1	1	1	1	1	1	0	0	63

Address from 64 to 95								Address	Address from 96 to 127								Address
DIP S2					DIP S3				DIP S2					DIP S3			
1	2	3	4	5	1	2	3		1	2	3	4	5	1	2	3	
0	0	0	0	0	0	1	0	64	0	0	0	0	0	1	1	0	96
1	0	0	0	0	0	1	0	65	1	0	0	0	0	1	1	0	97
0	1	0	0	0	0	1	0	66	0	1	0	0	0	1	1	0	98
1	1	0	0	0	0	1	0	67	1	1	0	0	0	1	1	0	99
0	0	1	0	0	0	1	0	68	0	0	1	0	0	1	1	0	100
1	0	1	0	0	0	1	0	69	1	0	1	0	0	1	1	0	101
0	1	1	0	0	0	1	0	70	0	1	1	0	0	1	1	0	102
1	1	1	0	0	0	1	0	71	1	1	1	0	0	1	1	0	103
0	0	0	1	0	0	1	0	72	0	0	0	1	0	1	1	0	104
1	0	0	1	0	0	1	0	73	1	0	0	1	0	1	1	0	105
0	1	0	1	0	0	1	0	74	0	1	0	1	0	1	1	0	106
1	1	0	1	0	0	1	0	75	1	1	0	1	0	1	1	0	107
0	0	1	1	0	0	1	0	76	0	0	1	1	0	1	1	0	108
1	0	1	1	0	0	1	0	77	1	0	1	1	0	1	1	0	109
0	1	1	1	0	0	1	0	78	0	1	1	1	0	1	1	0	110
1	1	1	1	0	0	1	0	79	1	1	1	1	0	1	1	0	111
0	0	0	0	1	0	1	0	80	0	0	0	0	1	1	1	0	112
1	0	0	0	1	0	1	0	81	1	0	0	0	1	1	1	0	113
0	1	0	0	1	0	1	0	82	0	1	0	0	1	1	1	0	114
1	1	0	0	1	0	1	0	83	1	1	0	0	1	1	1	0	115
0	0	1	0	1	0	1	0	84	0	0	1	0	1	1	1	0	116
1	0	1	0	1	0	1	0	85	1	0	1	0	1	1	1	0	117
0	1	1	0	1	0	1	0	86	0	1	1	0	1	1	1	0	118
1	1	1	0	1	0	1	0	87	1	1	1	0	1	1	1	0	119
0	0	0	1	1	0	1	0	88	0	0	0	1	1	1	1	0	120
1	0	0	1	1	0	1	0	89	1	0	0	1	1	1	1	0	121
0	1	0	1	1	0	1	0	90	0	1	0	1	1	1	1	0	122
1	1	0	1	1	0	1	0	91	1	1	0	1	1	1	1	0	123
0	0	1	1	1	0	1	0	92	0	0	1	1	1	1	1	0	124
1	0	1	1	1	0	1	0	93	1	0	1	1	1	1	1	0	125
0	1	1	1	1	0	1	0	94	0	1	1	1	1	1	1	0	126
1	1	1	1	1	0	1	0	95	1	1	1	1	1	1	1	0	127

- Step 4: System Setting of Centralized Controller

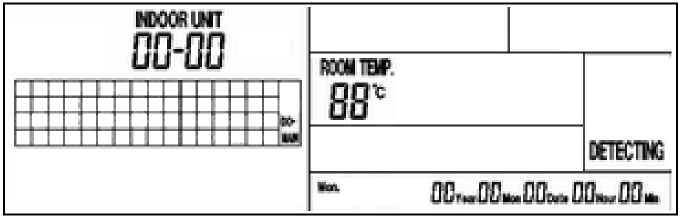
SYSTEM SETTING includes ADDRESS SETTING and INITIALIZE SETTING. The former one is used for setting address of control object (communication module), and the latter one for initializing the data in the centralized controller (including clear all the finished address settings).

Since the centralized controller can control at most 64 communication modules and the address of them is 0 to 253 (0 is generally unused), it must specify the address of communication module needed to be controlled. It is ADDRESS SETTING, which is not recommended to operate by users.

The debugging personnel can press SYSTEM/DEBUG into system setting interface. After pressing UP, DOWN, LEFT and RIGHT buttons, press CONFIRM button into the interface for selection between ADDRESS SETTING and INITIALIZE SETTING.

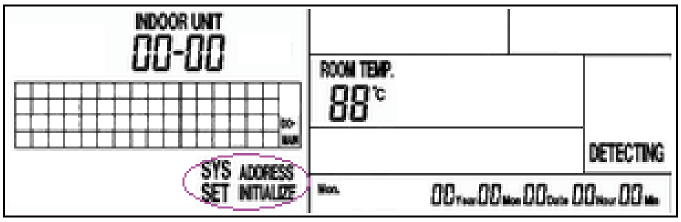
The operation procedure of ADDRESS SETTING:

1. The centralized controller without energizing and setting will display following.

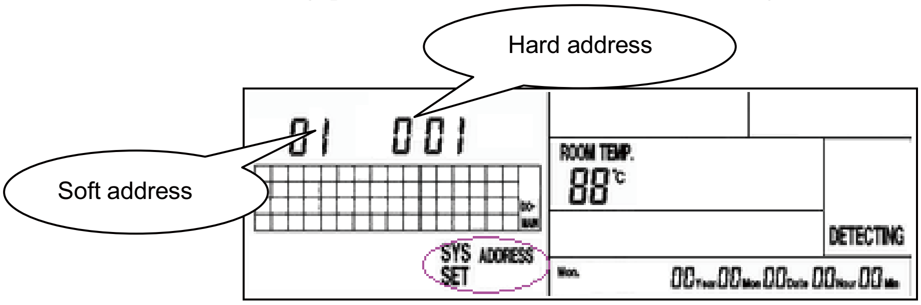

INDOOR UNIT
00-00
ROOM TEMP.
88°C
DETECTING
Mon.
00 Year 00 Mon 00 Date 00 Hour 00 Min

Display Present Unit No. 00-00 which means soft address 00-No. 00 indoor unit. (Soft address is the No. displayed in 1-64 grid of LCD.

Press SYSTEM/DEBUG into system setting interface. After pressing UP, DOWN, LEFT or RIGHT button, press CONFIRM button into the interface for selection between ADDRESS SETTING and INITIALIZE SETTING. Then press UP or DOWN button to switch between them.


INDOOR UNIT
00-00
SYS SET
ADDRESS
INITIALIZE
ROOM TEMP.
88°C
DETECTING
Mon.
00 Year 00 Mon 00 Date 00 Hour 00 Min

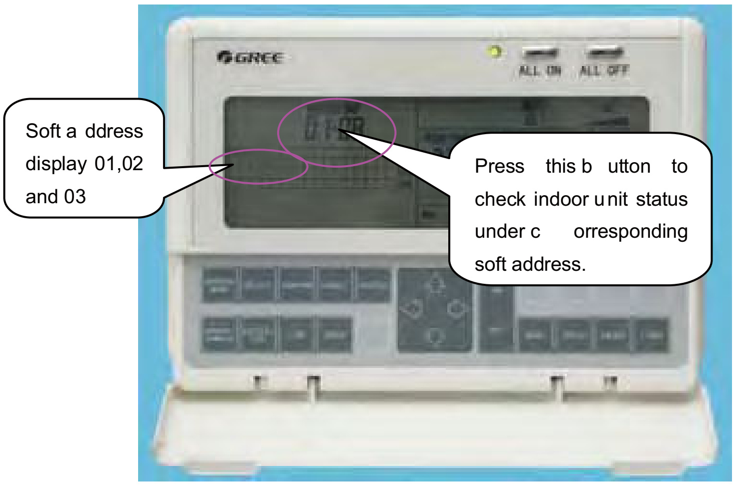
2. When ADDRESS SETTING is blinking, press SELECT button into address setting interface.


Hard address
Soft address
01 001
SYS SET
ADDRESS
ROOM TEMP.
88°C
DETECTING
Mon.
00 Year 00 Mon 00 Date 00 Hour 00 Min

Press LEFT or RIGHT button to switch between SOFT and Hard ADDRESS settings, and UP or Down button to adjust their values. After adjustment, press CONFIRM button to make the address values corresponding and effective. If the cursor stops at hard address position (hard address is blinking), press CANCEL button to make the setting value ineffective, in which case, the "- -"will be displayed.(Soft address is the No. displayed in 1-64 grid of LCD and hard address is the actual one of communication module.)

In this example, the centralized controller controls 3 communication modules with the address of 01, 02 and 03 (i.e. hard address is 01,02 and 03).For convenient management, soft address will be set to the same as hard address, i.e. "01 001","02 002"and "03 003".

If communication is normal after setting, the centralized controller will display as the following figure:


GREE
ALL ON
ALL OFF
Soft address display 01,02 and 03
Press this button to check indoor unit status under corresponding soft address.

a. 01,02 and 03 of soft address is displayed, which indicates normal communication of these 3 communication modules.

b. PRESENT UNIT NO. displays “01-08”, which indicates No. 08 indoor unit under 01 communication module is being checked.

c. Press ROOM/REGION button to check other indoor units’ status under present communication module. Indoor units’ status is automatically detected, without setting in centralized controller.

● Step 5: Troubleshooting during Installation of Centralized Controller

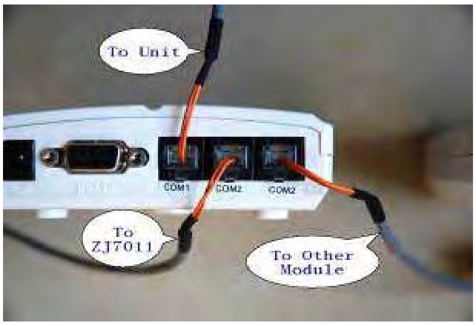
Generally speaking, connection of communication lines, address DIP of communication module and address mapping setting of centralized controller are the common problems during installation of centralized controller. These problems can be reflected from running indicator (green) of communication module. Meanwhile, it is recommended to debug the centralized controller after making communication of outdoor and indoor units smooth to simplify the problems.

A. Connection of communication lines

①. If incorrect or non-connection of communication module, centralized controller and communication line of indoor and outdoor units, the green indicator will be black all the time.

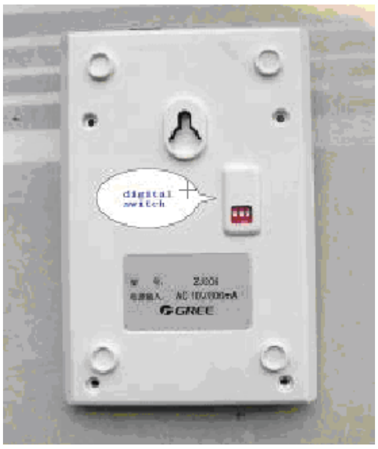
②. It indicates connection problem between communication module and centralized controller that green indicator blinks once every 2s.In this case, COM2 must be used to connect them.

③. It indicates connection problem of communication module and indoor and outdoor units that green indicator blinks twice every 2s. In this case, COM1 must be used to connect them. Refer to Step 2, C for details.



B. Address DIP of communication module

There are two methods for address setting. The one is that communication module has been set by software store, but the 3-D.C inverter DIP switch can not be dialed to OFF completely. The other one is to set it manually, but the 3-D.C inverter DIP switch should be dialed to OFF completely. Refer to step 3 for details.



C. Address mapping setting of centralized controller

The centralized controller only can normally operate after specifying address of communication module needed to control. If not, the operation status of communication and indoor units can not be displayed by it. Refer to Step 4 for details.

8 CENTRALIZED CONTROLLER (NEW)

8.1 Function

Brief introduction of function

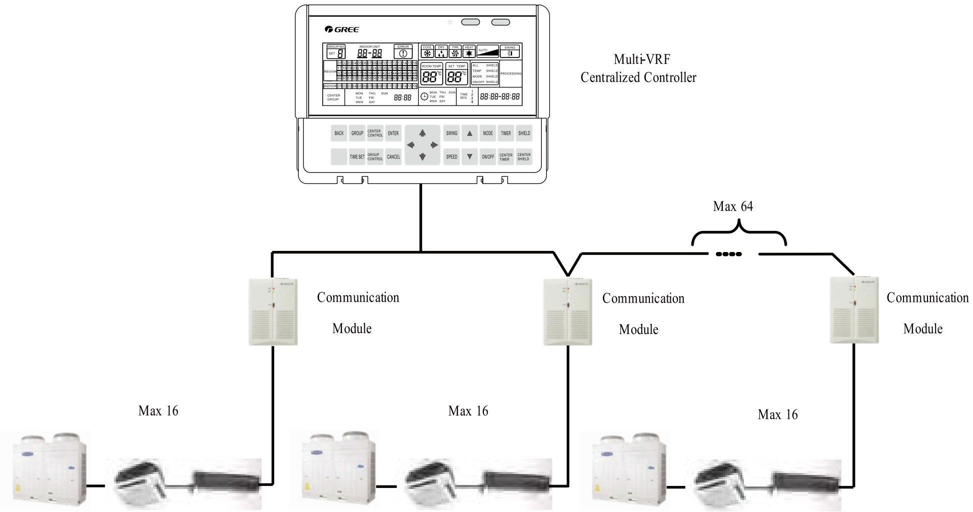
Used in multi-VRF system, a set of centralized controller can connect with 64 communication modules to control 1024 sets of indoor units. Through it, indoor unit's ON/OFF, operation mode, set temperature, fan speed, swing state etc. can be checked and controlled. This device can realize single/group/central control and conveniently manage the air conditioners through weekly timer and long-distance shiled setting.

a. Single control can control a single unit;
b. Group control can control a preset group of indoor units;
c. Central control can control all indoor units;
d. Single/group/central shiled is to shiled the operation parameters of indoor units from long distance;
e. Single/group/central weekly timer is to set TIMER ON/OFF of the air conditioner from long distance;
f. Clock setting is to set week, hour and minute and let them show;

The centralized controller can automatically detect the online "region" and indoor unit and display present indoor unit's operation mode, set temperature, fan speed, swing, weekly timer, shield, etc.For the purpose of quick inspection, upon malfunction of any indoor unit, its corresponding error code and region No. will be displayed and blink.The centralized controller integrating multiple communication modules makes up a communication network. Without reperaters, the communication wires's distance can be up to 1km.

8.2 Communication network

Sketch map of communication network:



Before normal operation of the centralized controller, the technician must set address of the communication system and perform debugging.

8.3 LCD display

Introduction to LCD display

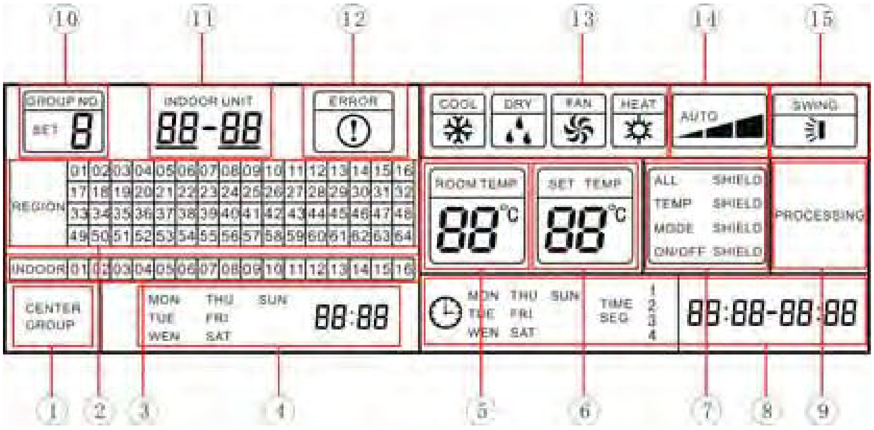

10
11
12
13
14
15
GROUP NO
SET
8
INDOOR UNIT
88-88
ERROR
COOL
DRY
FAN
HEAT
AUTO
SWING
REGION
ROOM TEMP
88℃
SET TEMP
88℃
ALL SHIELD
TEMP SHIELD
MODE SHIELD
ON/OFF SHIELD
PROCESSING
INDOOR
CENTER
GROUP
MON THU SUN
TUE FRI
WEN SAT
88:88
TIME
SEG
88:88-88:88
1
2
3
4
5
6
7
8
9

Fig. 8.3.1

Instruction to LCD graphic

No.	Description	Instruction to Displaying Contents
①	CENTER/GROUP	“GROUP” displayed during group control operation or grouping indoor units “CENTER” displayed during center control ,center shield or center timer operation
②	REGION NO.	Online or selected region No. displayed(Note 1)
③	INDOOR UNIT NO.	Online or sleected indoor unit no. displayed
④	System’s time display	Display present time by week, hour and minutes
⑤	ROOM TEMP	Room temperature of present indoor unit
⑥	SET TEMP	Set temperature display
⑦	SHIELD	All/terperature/mode/on/off shield from long distane
⑧	Timer setting display	Weekly timer display
⑨	PROCESSING	Displayed during sending out control command
⑩	GROUP NO.	Group No. display
⑪	INDOOR UNIT	Display region No.and unit no. of present indoor unit
⑫	ERROR	Error display upon malfunction of any unit
⑬	Opearation mode	Operation mode display of indoor unit
⑭	Fan speed display	High, medium, low or auto fan speed display
⑮	SWING	Swing operation mode display of indoor unit

Note : All indoor units connected by one communication module are automatically distributed in one region.

8.4 Silk screen

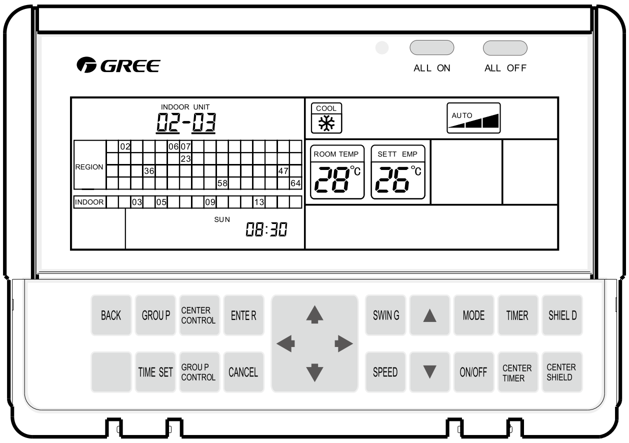

GREE
ALL ON
ALL OFF
INDOOR UNIT
02-03
REGION
INDOOR
SUN
08:30
COOL
AUTO
ROOM TEMP
28℃
SETT EMP
26℃
BACK
GROUP
CENTER CONTROL
ENTER
SWING
MODE
TIMER
SHIELD
TIME SET
GROUP CONTROL
CANCEL
SPEED
ON/OFF
CENTER TIMER
CENTER SHIELD

Fig.8.4.1 Silk screen of the buttons

Intsruction to buttons

No.	Description	Function
1	ALL ON	Start up all indoor units
2	ALL OFF	Stop all indoor units
3	BACK	Back to the previous menu of current display.
4	GROUP	Press this button in check state to check and set group information
5	TIME SET	Set system clock
6	CENTER CONTROL	Uniformly control the operation parameters of all indoor units
7	GROUP CONTROL	Uniformly control the operation parameters of one group of indoor units
8	ENTER	Press this button during function setting to confirm the setting
9	CANCEL	Press this button during function setting to cancel the setting. For example, press CANCEL button when CENTER CONTROL has been set, the state will go back to slection of control method.
10	Ul ▲ ◄ ► N ▼ LEFT/RIGHT	For direction indication. For example, press these buttons in state to select the indoor unit or communication modules to be queried.
11	SWING	Set swing or not
12	SPEED	Set high,medium,low or auto fan speed
13	▲ Increase	Increase set temperature
14	▼Decrease	Decrease set temperation
15	MODE	Set COOL,DRY,FAN or HEAT mode
16	ON/OFF	Set unit on or off
17	TIMER	Set or check timer
18	CENTER TIMER	Centrally set or check timer
19	SHIELD	Shield functions of a single or a group of indoor unit/s
20	CENTER SHILED	Centrally shield functions of all indoor units

8.5 Control method

There are single control, central control and group control.

8.5.1 Single control

Single control is to control the operation parameters of a single indoor unit.

Operation as follow:

a. Press LEFT/RIGHT button to switch between “REGION” and “INDOOR”. Press UP/DOWN button to adjust region no. and indoor unit no. in order to select the indoor units to be controlled. The selected region no. and indoor unit no. blink.

b. Set indoor unit operation states including mode, fan speed, temperature, timer, shield and so on.

c. Press BACK button during setting operation to go back into checking state.

8.5.2 Central control

Center control is to uniformly control the operation paramters of all indoor units.

Operation as follow:

a. Pressing CENTER CONTROL button, CENTER is displayed.

b. Set indoor unit operation states including mode, fan speed, temperature, timer, shield and so on.

c. Press BACK button during setting operation to go back into checking state.

8.5.3 Group control

Group control is to uniformly control the operation parameters of one group of indoor units.

Operation as follow:

a. Pressing GROUP CONTROL buuton, GROUP is displayed.

b. Set indoor unit operation states including mode, fan speed, temperature, timer, shield and so on.

c. Press BACK button during setting operation to go back into checking state.

8.6 Installation and Debugging

Installation of centralized controller includes installation of itself and connection with communication modules.

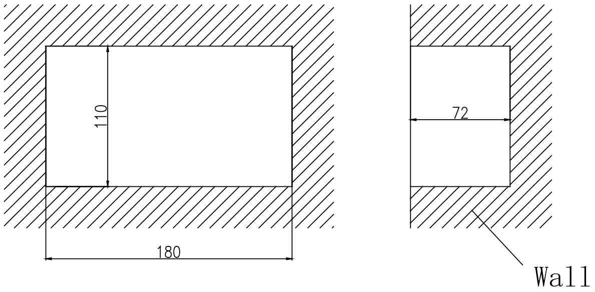
8.6.1 Installation

After selection of installation location, perform the installation as follow:

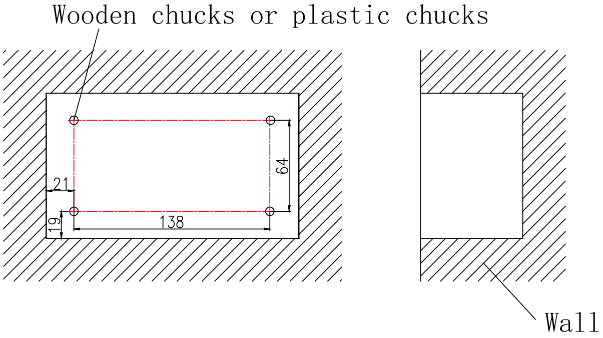
a. Confirm installation hole site:

To be installed in the wall

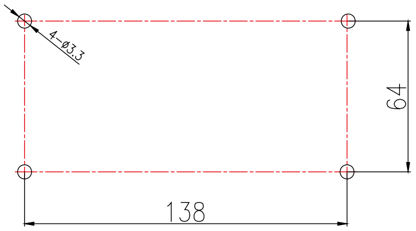
Dirll a hole of of 180mm×106mm×72mm (L×W×D)



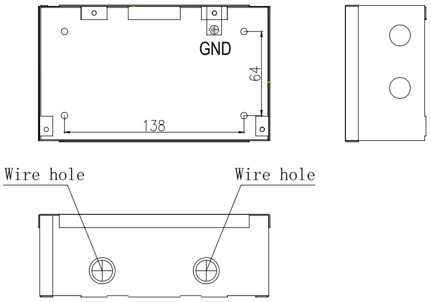
Make 4 pieces of wooden or plastic chucks



To be installed in the control cabinet:
Make 4 holes inside the wall of control cabinet according to the following dimension in the figure.



b. Install the electric box cover on the wall or in the control cabinet.



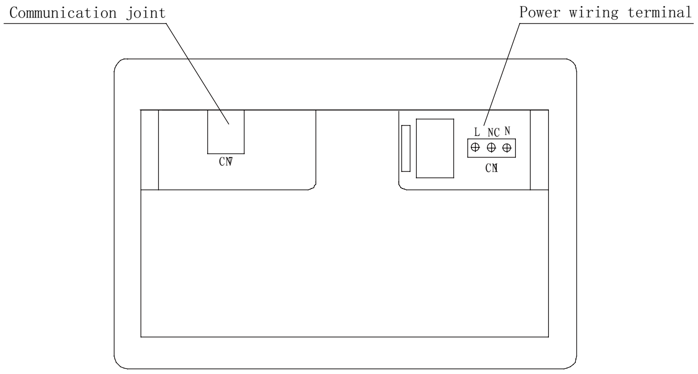
c. Connection of power cord and communication wire

Make the communication wire through the wire hole of the electric box cover and insert it into the communication port. Make the Power cord through the other wire hole on the electric box cover should be connected with the wiring terminal on the mainboard of controller ,as shown in the figure below. L connects with live wire, N connects with neutral wire and ground wire connects to the corresponding position marked on the electric box. Wire hole can be freely set according to actual condition.

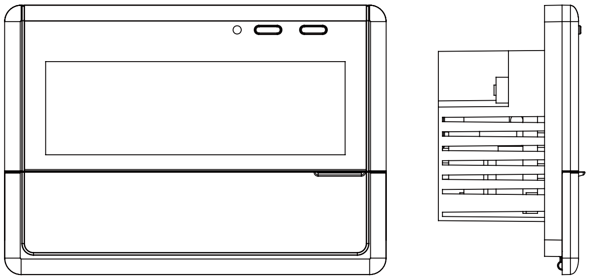
Power cord width connected with wiring terminals shall be in the range of 1.5~2.2mm.

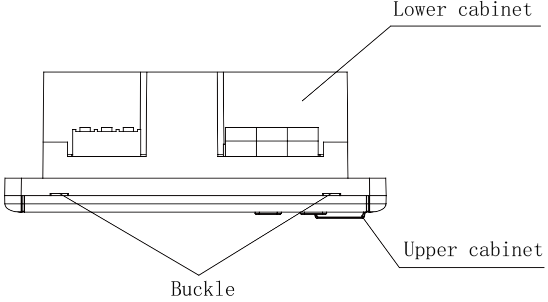
Rated voltage of wiring terminal is 220−240 VAC.

Power frequency is 50/60HZ.

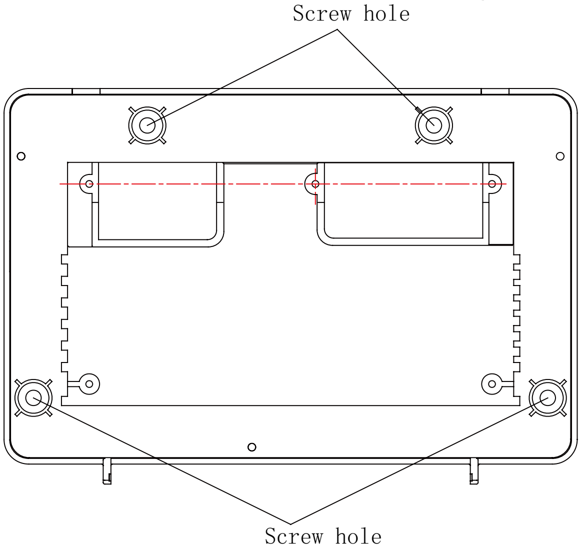

Communication joint
Power wiring terminal
CN7
L NC N
CN1

d. Divide the centralized controller into two parts from the buckle as shown in the folliwng figure-------upper cabinet and lower cabinet




Lower cabinet
Upper cabinet
Buckle

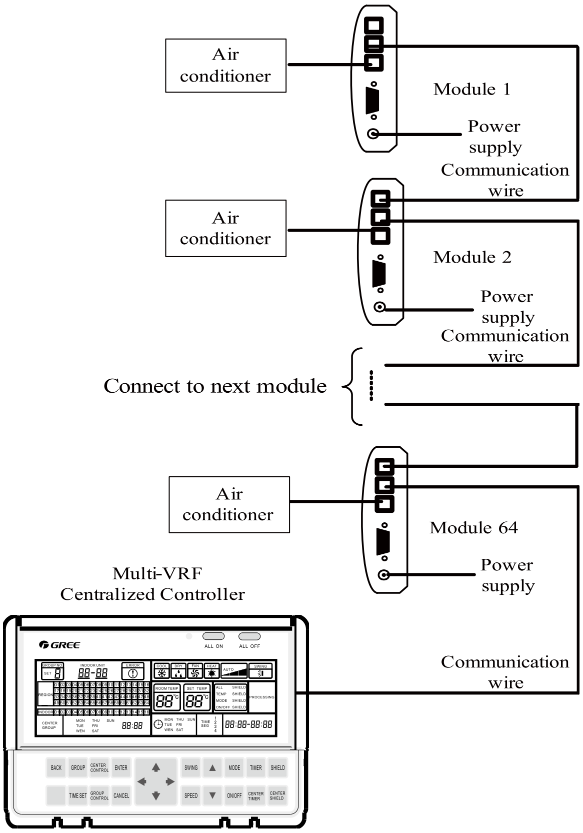
e. Connect the electric box cover and lower cabinet with screws according to the following figure.


Screw hole
Screw hole

f. Re-assemble the upper cabinet and debugging can begin after this.

8.6.2 Connection between centralized controller and communication module

Connection of them is shown in figure24.


Air conditioner
Module 1
Power supply
Communication wire
Air conditioner
Module 2
Power supply
Communication wire
Connect to next module
Air conditioner
Module 64
Power supply
Multi-VRF Centralized Controller
Communication wire
GREE
ALL ON
ALL OFF
BACK
GROUP
CENTER CONTROL
ENTER
SWING
MODE
TIMER
SHIELD
TIME SET
GROUP CONTROL
CANCEL
SPEED
ON/OFF
CENTER TIMER
CENTER SHIELD

Skecth map of connection between centralized controller and communication module

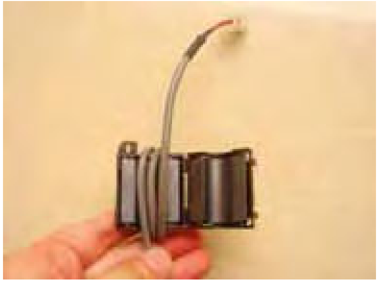
Note:

a. Communication module's address can be set from 1 to 64. In order to avoid communication malfunction, addresses can not be the same.

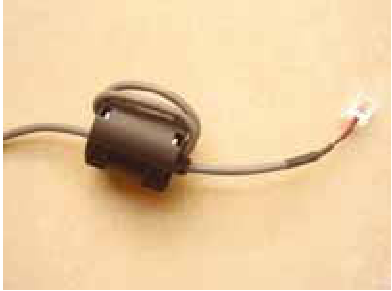
b. The communication wire of communication modules or centralized controller shall be equipped according to the distance in the project.

c. Gree provides a piece of 2-core communication wire of 1m (the user shall extend the wire according to actual condition).

d. The centralized controller and the communication module are connected together through a communication line with a crystal connector at both ends. Close to the controller, a magnetic ring is needed on the communication line and is approximately 10cm away from the crystal connector after wrapped two circles by the communication line. During the installation, the magnetic ring should be put inside the electric control box after the crystal connector is connected with the smart zone controller. See the following figure for the connection manner and location.



Connection Manner of Crystal Connector, Communication Line and Magnetic Ring



Connection Location of Crystal Connector, Communication Line and Magnetic Ring

After completion of installing centralized controller and matched communication modules, the technician shall set address and perform debugging of the communication modules to ensure normal communication.

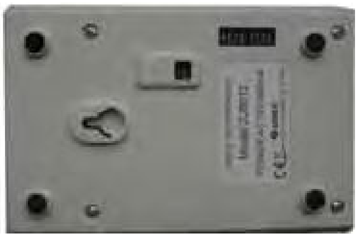
8.6.3 Debugging

In order to ensure normal operation of the centralized controller, the address of communication module shall be set after installation work. (Refer to Communcation Module Instruction for details.) Fill in the Installation Table (refer to table 3)

Address setting of communication module

Set the address of communication module by the DIP switch. (Before operating DIP switch, cut off the power supply of communication module.)

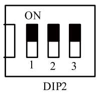
The DIP switch for communication module:



DIP switch

a. DIP2 setting

Dial all the rods to ON (means 0), as shown in 'setting'.

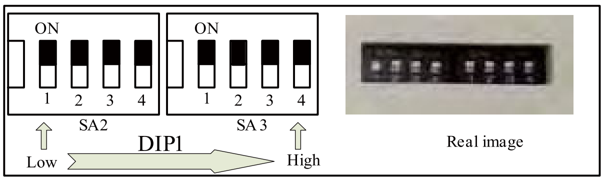


Code list from 1 to 7			
1	2	3	Value
0	0	0	0
1	0	0	1
0	1	0	2
1	1	0	3
0	0	1	4
1	0	1	5
0	1	1	6
1	1	1	7

setting

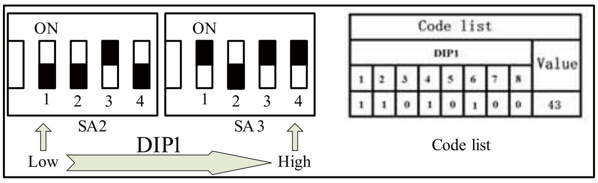
b. DIP1 setting

The 8-bit DIP switch in the communication module is for Modbus equipment address setting. It is integrated by SA2 and SA3 on PCB, but marked by DIP1. Dialing to ON means 0, and dialing to number end means 1. The address setting range is 1-64（communication module address).



DIP1 setting

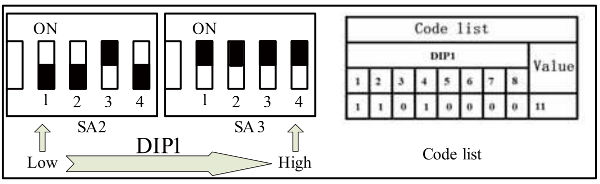
Graphic example for setting of address 11



Code list								
DIP1								Value
1	2	3	4	5	6	7	8	
1	1	0	1	0	1	0	0	43

Address 11

Graphic example for setting of address 43



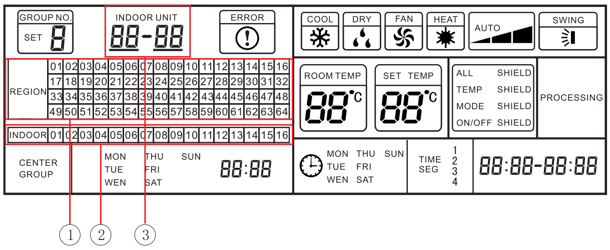
Code list								
DIP1								Value
1	2	3	4	5	6	7	8	
1	1	0	1	0	0	0	0	11

Address 43

Debugging

After address setting of communication module, check if the setting is correct through the region No. on the centralized controller. For example, the address is set to “01”, the centralized shall display region No. “01”. If the region No.“01” is not displayed, it proves that the setting is incorrect. You should reset the address No. according to the Comnunciation Module Instruction and DIP table.

After normal communication between centralized controller and communication module, an Installation Table shall be filled for check of information about each indoor unt. If the quantity of indoor units by check is inconsistent with that of the installed indoor units, address setting the communication module and connection of the communication wire shall be checked again.


GROUP NO.
SET
INDOOR UNIT
88-88
ERROR
COOL
DRY
FAN
HEAT
AUTO
SWING
REGION
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
INDOOR
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
ROOM TEMP
SET TEMP
88°C
88°C
ALL SHIELD
TEMP SHIELD
MODE SHIELD
ON/OFF SHIELD
PROCESSING
CENTER GROUP
MON TUE WEN THU FRI SAT SUN
88:88
TIME SEG
1 2 3 4
88:88-88:88
①
②
③

Installation Table :

Installation Table

Region No.	Indoor unit No.	Present indoor unit No.	Indoor unit location
08	03	08-03	No.3 indoor unit in Room B Floor A

Note:

①. Region No. indicates online region No.1-64, displayed by the centralized controller.

②. Indoor unit No. indicates online indoor unit No., 1-16, displayed by centralized controller.

③. Present indoor unit No. indicates present indoor unit No. displayed by centralized controller.

④. Indoor unit location indicates actual location of centralized controller, which is expressed by No.___ indoor unit, Room____, Floor ______.

8.7 Attachment

Error Code List:

Error code list of GMV VRF

Error Code	Malfunction
E1	High pressure protection of compressor
E2	Antifreezing protection of indoor unit
E3	Low pressure protection of compressor
E4	Discharge temperature protection of compressor
E5	Overcurrent protection, overload protection of compressor, drive malfunction
E6	Communication malfunction
E7	Modes conflict
E8	Indoor fan motor protection
E9	Water overflow protection (cassette type unit)
EH	E-heater protection
F0	Ambient temperature sensor malfunction of indoor unit
F1	Malfunction of coil pipe inlet sensor of indoor unit
F2	Malfunction of coil pipe intermediate sensor of indoor unit
F3	Malfunction of coil pipe outlet sensor of indoor unit
F4	Ambient temperature sensor malfunction of outdoor unit
F5	Malfunction of coil pipe inlet sensor of outdoor unit
F6	Malfunction of coil pipe intermediate sensor of outdoor unit
F7	Malfunction of coil pipe outlet sensor of outdoor unit
F8	Malfunction of discharge temperature sensor 1(fixed)
F9	Malfunction of discharge temperature sensor 2 (digital)
FA	Malfunction of oil temperature sensor 1(fixed)
Fb	Malfunction of oil temperature sensor 2 (digital)
Fc	High pressure sensor malfunction
Fd	Low pressure sensor malfunction
H6	PG Motor Stalling Protection

DIP table of communication module :

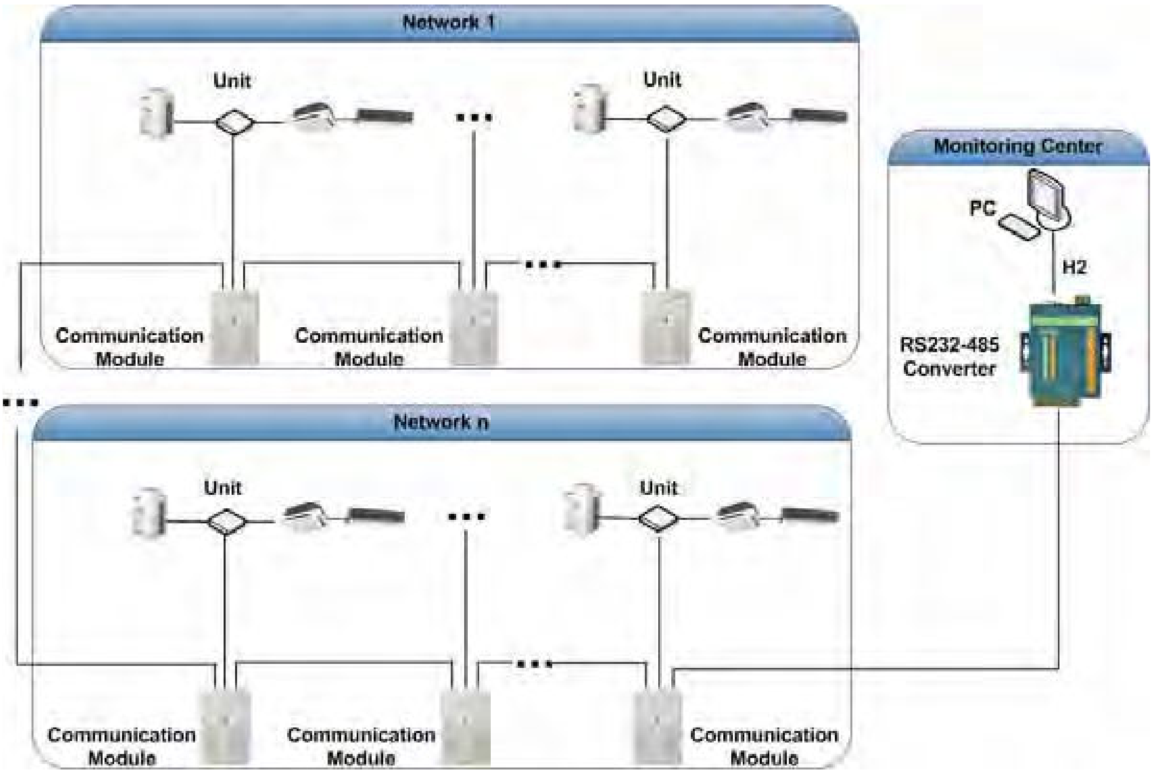
DIP table of communication module

DIP1								Address value	DIP1								Address value
1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	33
0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	34
1	1	0	0	0	0	0	0	3	1	1	0	0	0	1	0	0	35
0	0	1	0	0	0	0	0	4	0	0	1	0	0	1	0	0	36
1	0	1	0	0	0	0	0	5	1	0	1	0	0	1	0	0	37
0	1	1	0	0	0	0	0	6	0	1	1	0	0	1	0	0	38
1	1	1	0	0	0	0	0	7	1	1	1	0	0	1	0	0	39
0	0	0	1	0	0	0	0	8	0	0	0	1	0	1	0	0	40
1	0	0	1	0	0	0	0	9	1	0	0	1	0	1	0	0	41
0	1	0	1	0	0	0	0	10	0	1	0	1	0	1	0	0	42
1	1	0	1	0	0	0	0	11	1	1	0	1	0	1	0	0	43
0	0	1	1	0	0	0	0	12	0	0	1	1	0	1	0	0	44
1	0	1	1	0	0	0	0	13	1	0	1	1	0	1	0	0	45
0	1	1	1	0	0	0	0	14	0	1	1	1	0	1	0	0	46
1	1	1	1	0	0	0	0	15	1	1	1	1	0	1	0	0	47
0	0	0	0	1	0	0	0	16	0	0	0	0	1	1	0	0	48
1	0	0	0	1	0	0	0	17	1	0	0	0	1	1	0	0	49
0	1	0	0	1	0	0	0	18	0	1	0	0	1	1	0	0	50
1	1	0	0	1	0	0	0	19	1	1	0	0	1	1	0	0	51
0	0	1	0	1	0	0	0	20	0	0	1	0	1	1	0	0	52
1	0	1	0	1	0	0	0	21	1	0	1	0	1	1	0	0	53
0	1	1	0	1	0	0	0	22	0	1	1	0	1	1	0	0	54
1	1	1	0	1	0	0	0	23	1	1	1	0	1	1	0	0	55
0	0	0	1	1	0	0	0	24	0	0	0	1	1	1	0	0	56
1	0	0	1	1	0	0	0	25	1	0	0	1	1	1	0	0	57
0	1	0	1	1	0	0	0	26	0	1	0	1	1	1	0	0	58
1	1	0	1	1	0	0	0	27	1	1	0	1	1	1	0	0	59
0	0	1	1	1	0	0	0	28	0	0	1	1	1	1	0	0	60
1	0	1	1	1	0	0	0	29	1	0	1	1	1	1	0	0	61
0	1	1	1	1	0	0	0	30	0	1	1	1	1	1	0	0	62
1	1	1	1	1	0	0	0	31	1	1	1	1	1	1	0	0	63
0	0	0	0	0	1	0	0	32	0	0	0	0	0	0	1	0	64

9 MONITORING SOFTWARE

9.1 Function

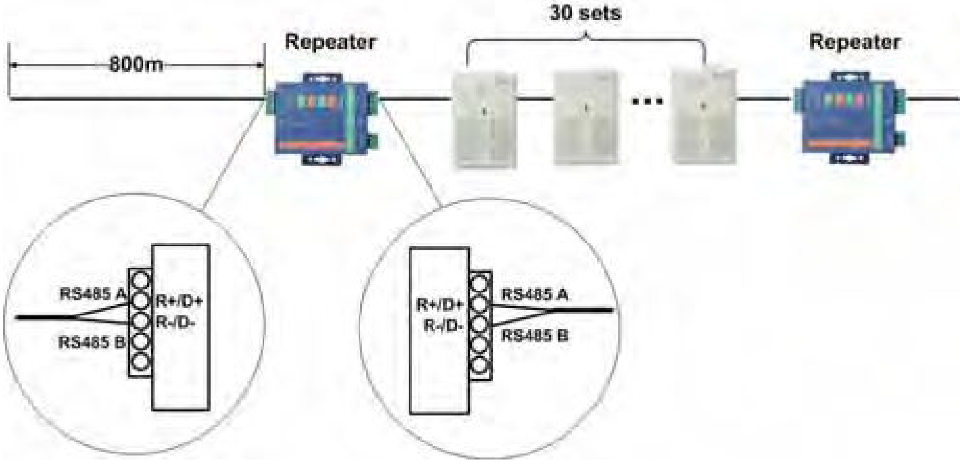
As the development and improvement of manufacturing technology and in order to solve the problems of complex distribution of the central AC in the buildings and difficult control and maintenance of them, an platform easy and reliable to operate must be provided to the users for daily management and maintenance. So this long-distance monitoring system combining electronic communication and computer technologies is developed to collect the running state of the units and to monitor and control the units from a long distance. Its structure is as follow:


Network 1
Unit
Unit
Monitoring Center
PC
H2
RS232-485 Converter
Communication Module
Communication Module
Communication Module
Network n
Unit
Unit
Communication Module
Communication Module
Communication Module

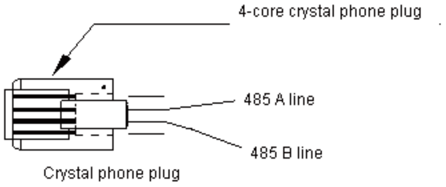
9.2 Connection Between the Computer and the Unit

Notice:

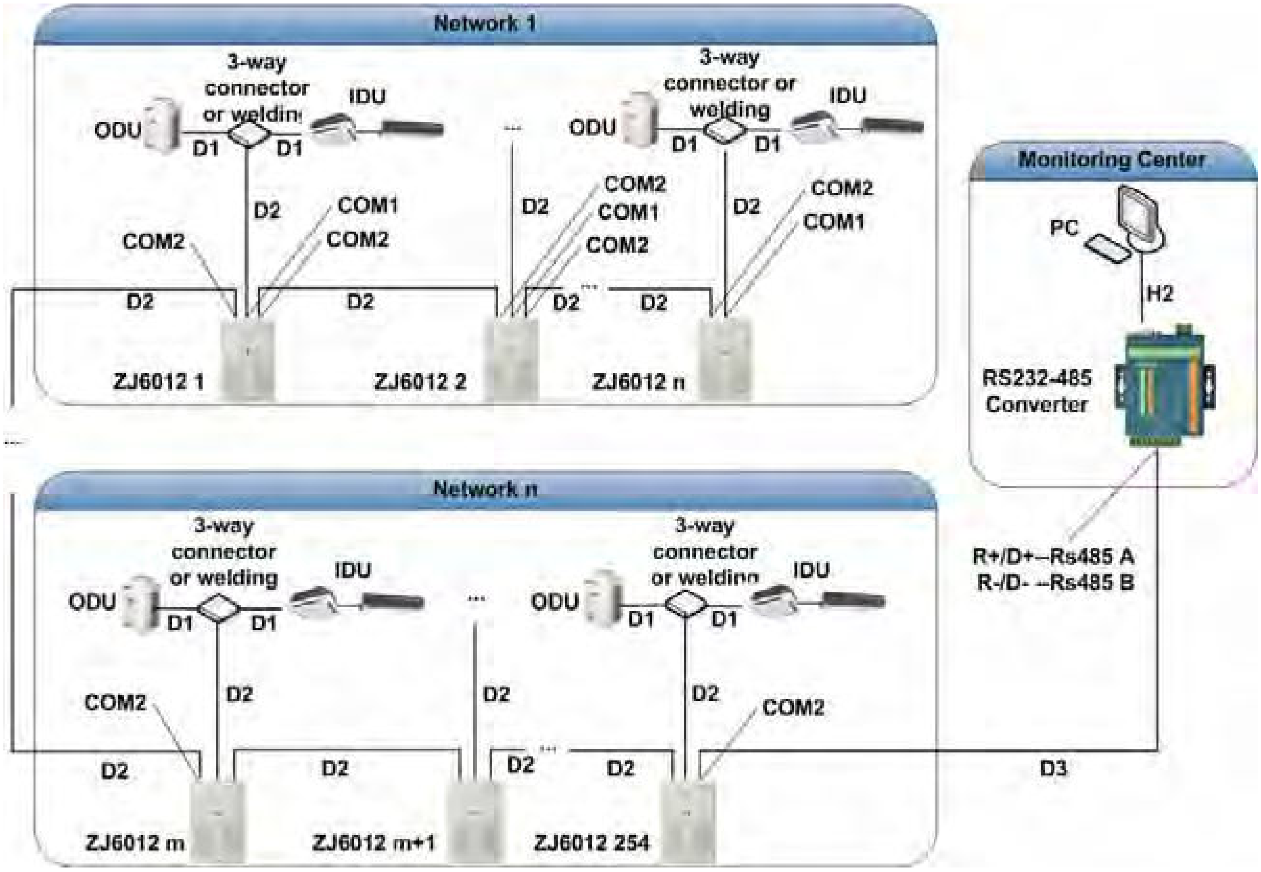
- The address code of the communication modules should not be conflicted in one project.
- Optoelectronic Isolated Repeater :One every 800m of communication distance equipped with one and One every 30 communication modules equipped with one.


30 sets
800m
Repeater
Repeater
RS485 A
RS485 B
R+/D+
R-/D-
R+/D+
R-/D-
RS485 A
RS485 B

- the communication cable and heavy-current wire should be separated and the distance between them can not be below 15cm
- Line A and line B of Bus 485 should respectively correspond with line A and line B.
- Crystal head (crystal head buckle is downwards)


4-core crystal phone plug
485 A line
485 B line
Crystal phone plug

Wiring Diagram


Network 1
3-way connector or welding
ODU
IDU
D1
D1
D2
COM1
COM2
COM2
D2
D2
ZJ6012 1
ZJ6012 2
ZJ6012 n
COM2
COM1
COM2
D2
D2
COM2
COM1
Monitoring Center
PC
H2
RS232-485 Converter
R+/D+--Rs485 A
R-/D- --Rs485 B
Network n
3-way connector or welding
ODU
IDU
D1
D2
COM2
D3
ZJ6012 m
ZJ6012 m+1
ZJ6012 254

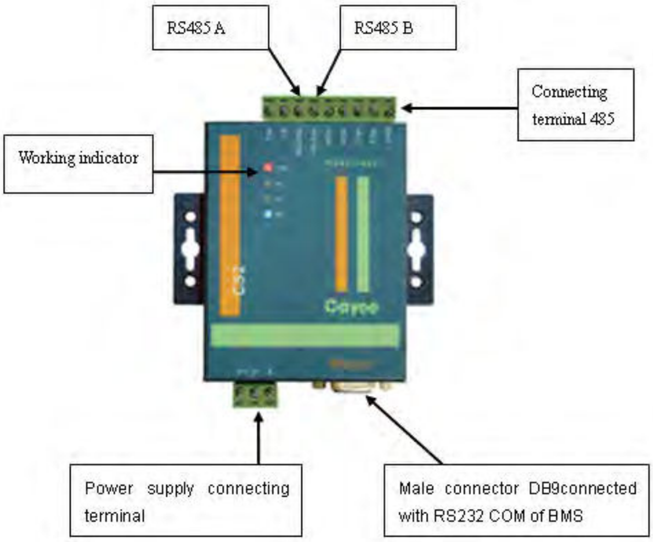
Description of above communication cables

Cable	Description
D1	crystal head and the other end is XH 4-core pin connector (2-core Type-V twisted pair wire)
D2	both crystal head(Standard parts)
D3	crystal head and the other end connects of it connects with wiring terminal of converter. (2-core Type-V twisted pair wire)
H2	both 9-core head (Standard parts)

9.3 Hardware

Introduction to Main Devices

(1) R232-R485 Optoelectronic Isolated Converter (standard parts)


RS485 A
RS485 B
Connecting terminal 485
Working indicator
Power supply connecting terminal
Male connector DB9connected with RS232 COM of BMS

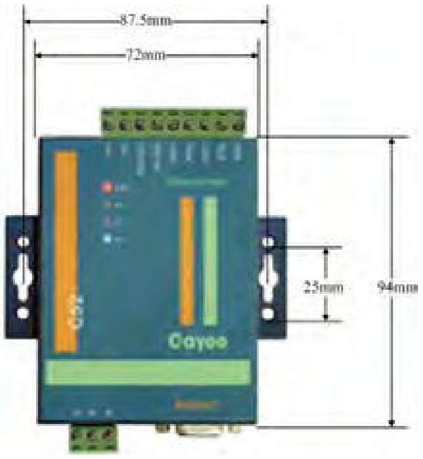
1) Function Introduction:

- R232-R485 optoelectronic Isolated converter is used to convert the signal 232 of PC COM and signal of bus 485.

2) Dimension

Description	L(mm)	W(mm)	H(mm)
optoelectronic isolated converter	94	72	23

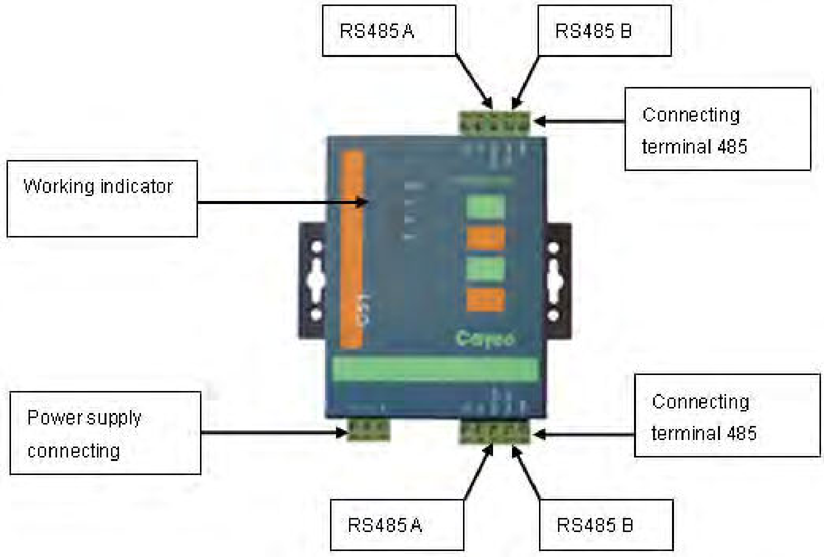
3) Installation Dimension


87.5mm
72mm
23mm
94mm
Cayoo

4) Installation Criteria:

- It must be installed indoors to avoid knock, insolation or rainwater and is better to be put in the monitoring room.
- This device must be the original one in the factory. Never self-buy the models for replacement.
- 220-V AC socket must be installed for independent power supply.
- Power supply specification: 12~30VDC 800mA

(2) Optoelectronic Isolated Repeater (optional parts)


RS485 A
RS485 B
Connecting terminal 485
Working indicator
Cayoo
Power supply connecting
Connecting terminal 485
RS485 A
RS485 B

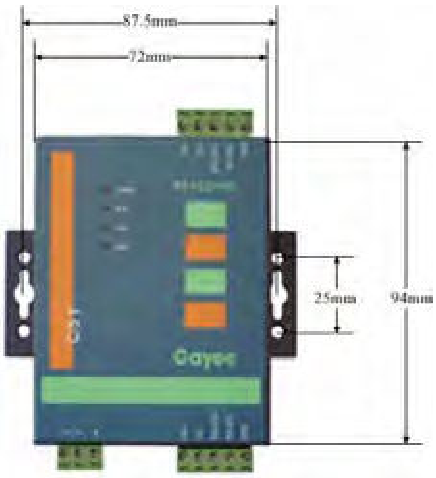
1) Function Introduction:

- Optoelectronic Isolated repeater is mainly used to collect increase of communication distance and nodes when the quantity of communication modules is above 30 or communication distance is above 800m.Refer to Project and Installation section for details.

2) Dimension

Description	L(mm)	W(mm)	H(mm)
Optoelectronic Isolated Repeater	94	72	23

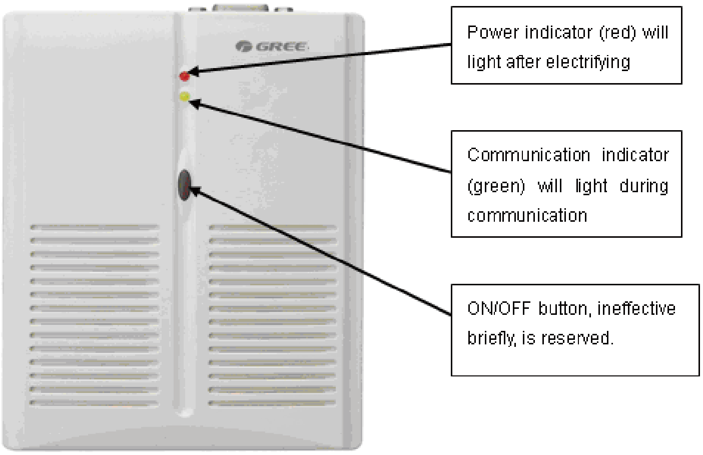
3) Installation Dimension



4) Installation Criteria:

- It must be installed indoors to avoid knock, insolation or rainwater and is better to be put in centralized control cabinet
- This device must be the original one in the factory. Never self-buy the models for replacement.
- 220-V AC socket must be installed for independent power supply.
- 12~30VDC 800mA Power supply specification: 12~30VDC 800mA

(3) 1.3 Communication Module (standard parts)


Power indicator (red) will light after electrifying

Communication indicator (green) will light during communication

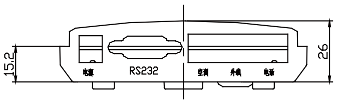
ON/OFF button, ineffective briefly, is reserved.

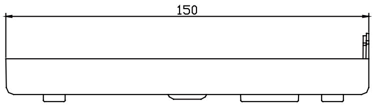
1) Function Introduction

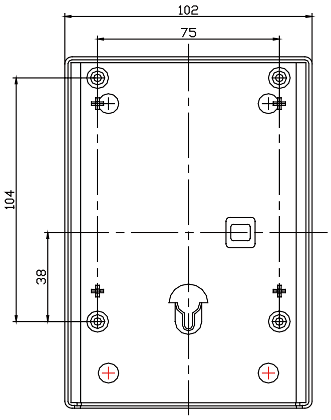
- Communication module is used for conversion and transfer of signal of PC and air conditioner during the communication of them, making the role of communication controller. Refer to User Instruction to Communication Module for details.

2) Dimension:

Description	L(mm)	W(mm)	H(mm)
Communication module	150	102	30


15.2
26
电源
RS232
空调
外线
电话



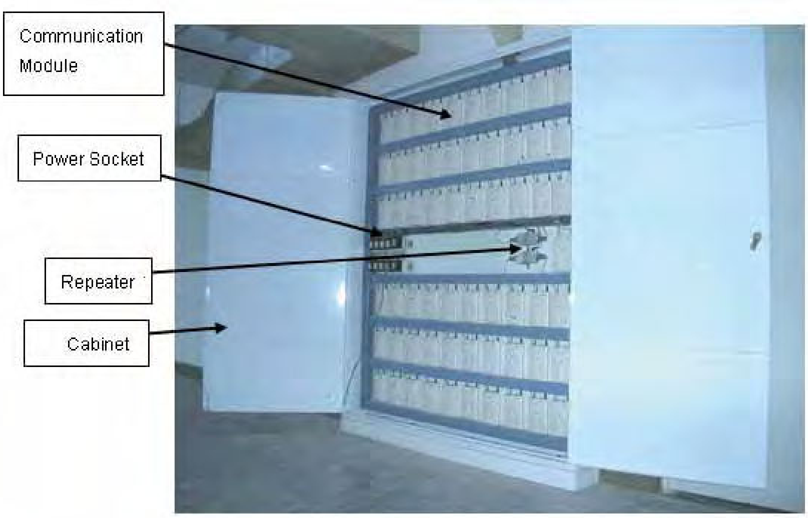

102
75
104
38

3) Installation Dimension:

Description	Distance to top side(mm)	Diameter(mm)
Hanging Hole	35	5

4) Use Instruction to Communication Module

- The Sketch Map of COM, as shown below:



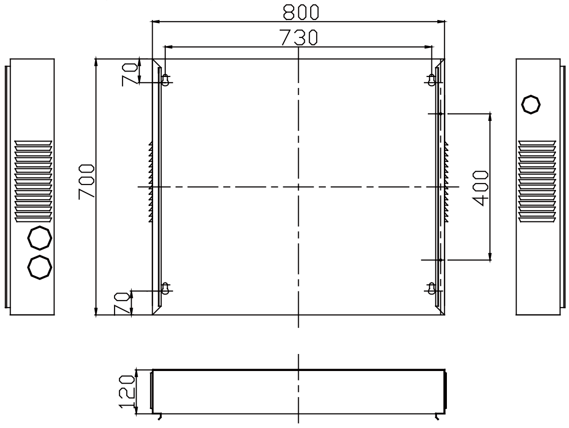
1) Function Instruction:

- It can put the communication modules together for convenient centralized management and reliable operation.

2) Dimension:

- The following dimension is for reference. The cabinet is designed according to 10 communication modules into it. If more modules are needed, the cabinet should be designed once again. The internal structure should accord to actual state.

The external dimension of the cabinet (Unit: mm)

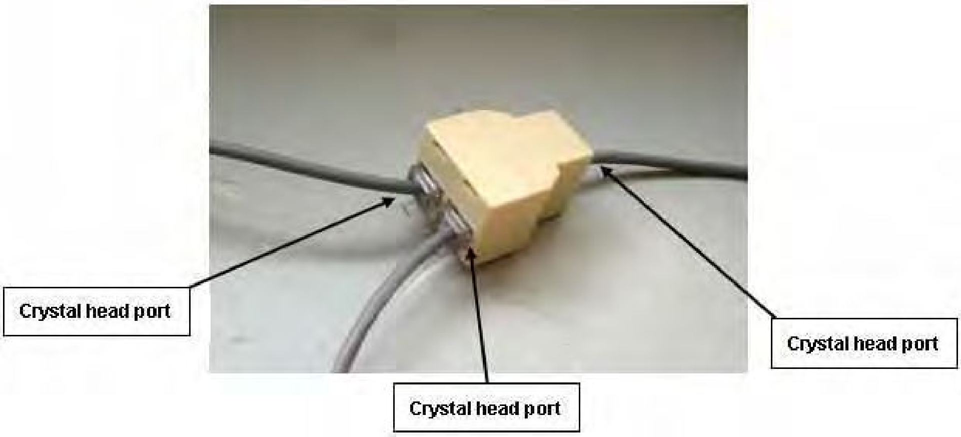


3) Installation Criteria:

- The dimension of the cabinet should be designed according to quantity , arrangement and put position of the communication modules before make of it.
- Independent power supply for each communication module is needed, so enough 220v AC sockets should be installed in the cabinet.
- The communication cable and heavy-current wire should be separated for the distance above 15cm.
- The cabinet should be put indoors and locked to avoid insolation and rainwater or contact of non-manager.

(5) 3-way Phone Connector (user provided parts)

Note: Lines without 3-way telephone connector can be connected by welding and protected with insulating tape to avoid oxidization and short circuit.



1) Function Instruction: Common 3-way phone connector is applied to connect 3 pieces of communication cable. Dimension :

Description	L(mm)	W(mm)	H(mm)
3-way connector	33	27	21

2) Installation Criteria:

- Avoid knock, insolation or rainwater.
- Ensure tightness of each bayonet without load.
- Perform conduction test after installation. Replace the ones of poor contact.
- The welding method is better than 3-way connector.
- After the connection of communication cables with 3-way connector, it must be fixed by insulating tape to avoid loose and poor contact of crystal head.

INSTALLATION

INSTALLATION

1 PRECAUTIONS FOR INSTALLATION

Before installation, please ensure if the installing site, power ratings, possible operating range (pipe distance, height difference between indoor and outdoor unit, power voltage) and installing space are correct and suitable.

◆ To ensure correct installation, please make sure to read the Safety Considerations thoroughly before starting the installation works.

◆ The considerations stated below are classified into ¡ WARNING and ¡ CAUTION. Those that might cause death or severe injury in case of wrong installation are identified in ¡ WARNING. However, those that are stated in ¡ CAUTION may also cause severe accidents sometimes. Therefore, both of them relate to important safety considerations and must be strictly followed.

◆ Aftercompleting the installation and test run and confirming that all are normal, please introduce to the client on how to use and repair the machine according to the Operating Instructions. Besides, please deliver the considerations herein to the clients together with the Operating Instructions, and ask them to keep properly.

WARNING!

◆ The installation shall be performed by the vendor or professional dealer from which you buy the machine. If you install by yourself, any improper installation might cause water leakage, electric shock or fire accident.

◆ The installation shall be done correctly according to installation instructions. Improper installation may cause water leakage, electric shock or fire.

◆ Please install at a position that is strong enough to support the weight of machine. If the installing position is of low strength, the machine may drop down and thus cause human injury.

◆ Please carry out installation in accordance with the rules for preventing the typhoon or earthquake. The machine may tip over if the installation does not comply with the requirements.

◆ The electrical cabling shall be carried out by qualified electricians in accordance with the Safety Code for Electrical Equipment, relevant local rules and the installation instructions. Make sure to use the special-purpose circuit. If the power circuit capacity is low or the construction is improper, it might cause electric shock or fire accidents.

◆ Please use suitable cables and connect them securely. Please fix the terminal joints securely. The terminal connection shall not be affected due to any external force applied onto the cable. Improper connection and fixing may cause heating and fire accidents.

◆ Keep the cables in correct shape and prevent them from protruding upward. Please protect them securely with repair board. Improper installation may cause heating and fire accidents.

◆ When erecting or relocating the air conditioner, do not let any air enter into cooling circulation system except the specified refrigerant. If any air is mixed, abnormal high pressure will occur in the cooling circulation system, thus causing crack or human injury accidents.

◆ During installation, please always use the attached parts or designated parts. Failure to use the designated parts may cause water leakage, electric shock, fire or refrigerant leakage.

CAUTION:

◆ Please earth securely. Do not connect the earth wires to gas pipe, water pipe, lightning rod or telephone line. Improper earthing might cause electric shock.

◆ Leakage circuit breaker must be installed at some place. No installation of leakage circuit breaker might cause electric shock.

◆ Do not install at a place where inflammable gas might leak. Gas leakage and despot around the machine might cause fire accidents.

Introduction

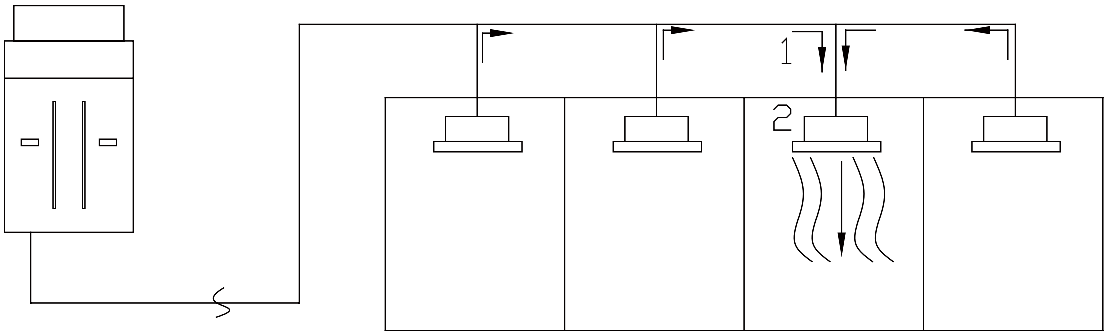
The installer and system specialist shall safety against leakage according local regulations or standards. The following standards may be applicable if local regulations are not available. The GMV-Pdhm System like other air conditioning system, uses R410A as refrigerant.R410A itself is an entirely safe non-toxic, non-combustible refrigerant. Nevertheless care must be taken to ensure that air conditioning facilities are installed in a room which is sufficiently large. This assures that the maximum concentration level of refrigerant gas is not exceeded, in the unlikely event of major leak in the system and this in accordance to the local applicable regulations and standards.

Maximum concentration level

The maximum charge of refrigerant and the calculation of the maximum concentration of refrigerant is directly related to the humanly occupied space in to which it could leak.

The unit of measurement of the concentration is 1b/ft^3(the weight in 1b of the refrigerant gas in 1 ft^3 volume of the occupied space).

Compliance to the local applicable regulations and standards for the maximum allowable concentration level is requied.



1).Direction of the refrigerant flow

2).Room where refrigerant leak has occurred (outflow of all the refrigerant from the system).

Pay a special attention to the place, such as a bassment, etc. where refrigerant can stay, since refrigerant is heavier than air.

Procedure for checking maximum concentration .Check the maximum concentration level in accordance with steps 11 to 4 below and take whatever action is necessary to comply.

① . Calculate the amount of refrigerant (1b) charged to each system separately.

Amount of refrigerant in a single unit system (amount of refrigerant with which the system is charged before leaving the fatory) + Additional charging amount (amount of refrigerant added locally in accordance with the length or diameter of the refrigerant piping) = total amount of refrigerant (1b) in the system.

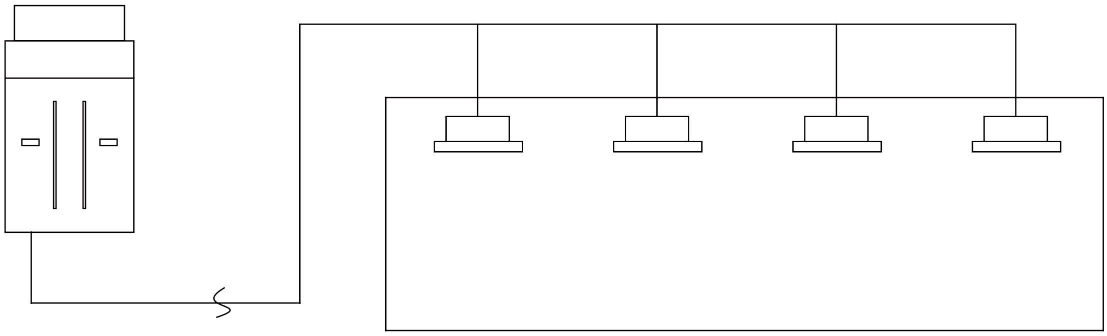
⚠ NOTE

Where a single refrigerant facility is divided into 2 entirely independent refrigerant systems then use the amount of refrigerant with which each separate system is charged.

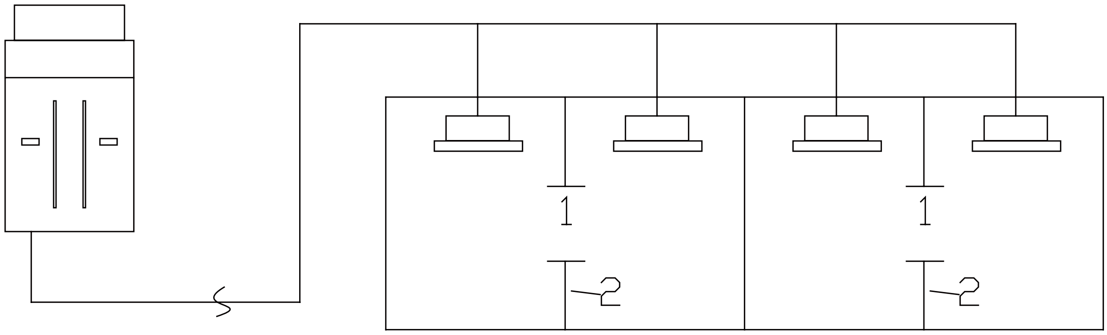
② . Caculate the smallest room volume(ft³)

Incase like the following, calculate the volume of (A),(B)as a single room or as the smallest room.

A. Where there are no smaller room divisions



B. Where there is a room division but there is an opening between the rooms sufficiently large to permit a free flow of air back and forth.



1).opening between rooms.

2).partition.

(Where there is an opening without a door or where there are openings above and below the door which are each equivalent in size to 0.15% or more of the floor area.)

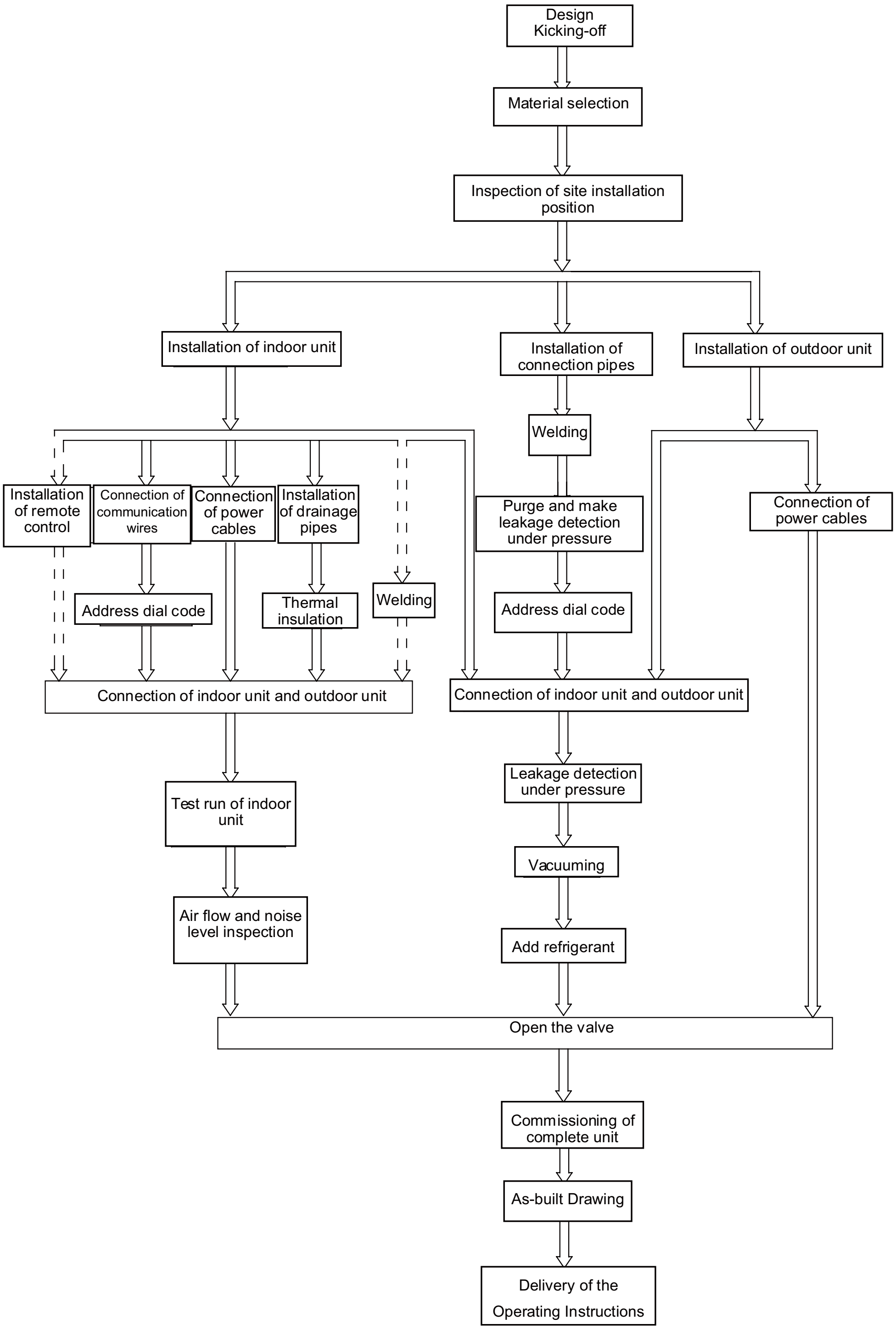
3).Calculating the refrigerant density using the results of the calculations in steps 1 and 2 above.

Total volume of refrigerant in the refrigerant system ≤ maximum concentrationg level(1b/ ft^3) Size (ft^3) of smallest room in which there is an indoor unit installed

If the result of the above calculation exceeds the maximum concentration level then make similar calculations for the second then third smallest room and so unit the result falls short of the second then third smallest room and so until result falls short of the maximum concentration.

4).Dealing with the situations where the result exceeds the maximum concentration level and the installation of a facility level then if it will be necessary to revise the system, please consult your GREE supplier.

2 FLOW CHART OF INSTALLATION


Design Kicking-off
Material selection
Inspection of site installation position
Installation of indoor unit
Installation of connection pipes
Installation of outdoor unit
Welding
Installation of remote control
Connection of communication wires
Connection of power cables
Installation of drainage pipes
Purge and make leakage detection under pressure
Connection of power cables
Address dial code
Thermal insulation
Welding
Address dial code
Connection of indoor unit and outdoor unit
Connection of indoor unit and outdoor unit
Test run of indoor unit
Leakage detection under pressure
Vacuuming
Air flow and noise level inspection
Add refrigerant
Open the valve
Commissioning of complete unit
As-built Drawing
Delivery of the Operating Instructions

Installation Procedures and Acceptance Criteria:

Installation Procedures			Description and Acceptance Criteria
Design Kicking-off			1. After releasing the drawings, the technicians shall meet with the construction supervisor to deepen and understand the drawings, find out the problems, difficulties and errors in the drawings, and have them solved during review of the drawings and technical kick-off meeting. <0} 2. Carry out depth study to the position where the quality is hard to control, and prepare corresponding work instructions or construction program. <0} 3. To avoid missing or error, the technicians shall mark all the embedded parts on civil drawings, so as to facilitate inspection and supervision during civil construction.
Material Selection and Equipment Inspection			1. The materials specified on the engineering drawing shall be purchased as specified (e.g. copper tube, thermal insulation tube, PVC pipe, power cables, air switch, etc); 2. The materials not specified on the engineering drawing shall be purchased according to the actual quantity of works (e.g. hanger frame, cable duct, etc); 3. Check if the outdoor unit, indoor unit, communication wires and accessories are complete.
Installation of indoor unit	Communication wire	Connection	1. The power cables shall be separated from communication wires at a least distance of 20cm. 2. To avoid breaking the communication wires, please do not use strong force. 3. For multiple units, please mark them properly. <0} 4. Switch on indoor and outdoor unit, and ensure there is no display of “Communication Wire Error E6”.
		Address dial code	1. Each indoor unit under the same system has a unique address dial code. 2. The wired controller and its corresponding indoor unit have the same address dial code.
	Remote Control		1. Select the remote control mode; 2. The centralized controller and communication module shall be installed free from the source of interference.
	Power cord		1. The power cable must meet the specifications. 2. The indoor units under the same system must be arranged under unified power supply.

	Drainage Pipe	Installation	1. The PVC pipes must meet the specifications. 2. A specific gradient must be provided along the water flow direction. 3. Carry out water detection after installation. 4. Carry out thermal insulation to the drainage pipe only after the water detection is accepted.
		Thermal insulation	1. The thermal insulation tube must meet the specifications. 2. Seal between the thermal insulation pipes to avoid air entry.
	Installation of Air Duct (when with high static pressure duct-type unit)		1. Design the length of air duct according to static pressure; 2. The air intake shall be optimally designed to avoid too small size or causing complaint about the noise. 3. To avoid noise complaint, it is preferable to use back air intake. If down air intake is adopted, the noise will be 6 dBA higher. 4. To avoid noise complaint, avoid using high static pressure duct-type unit at the place of zero static pressure.
Installation of connection pipes	Welding		1. The copper tube must meet the specifications. 2. Ensure it is dry and clean inside the tube. Use compressed air 0.8MPa (gauge pressure) to purge the tube. The purge shall be repeated not less than 3 times, until there is no dirt discharged. 3. Make sure to charge nitrogen as required for protection when welding the tubes. 4. Please keep to the welding process and ensure the system free of leakage. 5. Add a dual-way filter on liquid pipe side. 6. For multiple systems, please mark them properly. 7. Carry out leakage detection under pressure after welding.
	Purge and make leakage detection under pressure		1. Purge the system clean. Use a wood board attached with white paper to check 300-500mm from the discharge port. It is clean if there is no obvious dirt on the white paper. 2. Keep the nitrogen pressure 2.8MPa for 24 hours. For R410A refrigerant, the nitrogen pressure shall be 3.8MPa. Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1°C, the pressure will change by approx. 0.01MPa).
	Thermal insulation		1. The thermal insulation tube must meet the specifications. 2. Seal between the thermal insulation pipes to avoid air entry.
Installation of outdoor unit			Select the installing position correctly. Build the foundation according to the anchor bolt position and the dimension of outdoor unit; Build the damping device properly. Avoid sharp knock when handling the outdoor unit. The inclination angle shall not be higher than 15°
Connection of indoor unit and outdoor unit			Tighten the nuts; Provide proper protection to the outdoor connection pipe, communication wires and power supply.
Leakage detection under pressure			Keep the nitrogen pressure 4.15MPa for 24 hours. Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1°C, the pressure will change by approx. 0.01MPa).
Vacuuming			Establish vacuum simultaneously in the gas pipe and liquid pipe; The vacuuming time shall be long enough. Put still for 1 hour after vacuuming. It is deemed acceptable if the pressure will not rise.
Add refrigerant			Add refrigerant according to the volume as specified on the engineering drawing.
Open the valve of outdoor unit			Check carefully if the valve of each unit is opened.
Commissioning of complete unit			Run the indoor unit one by one to check if there is wrong connection of pipes.
As-built Drawing			Set out detailed work drawings to facilitate subsequent inspection.
Delivery of the Operating Instructions			Provide operation training and deliver the required documents to the user.

Remarks:

Described above are general working procedures. The procedures might vary with the site conditions.

For detailed installation rules, please see the description in each chapter.

3 INSTALLATION OF OUTDOOR UNIT

3.1 Hoisting of Unit

◆ Transport the unit to a place as close as possible to the installing site before taking it out from the packaging box.

CAUTIONS!

Never put any object on top of the unit before and after installation.

To lift the machine with crane, please use two ropes to lift the outdoor unit.

◆ Hoisting Method

The machine must be balanced when it is lifted. Check and ensure that the machine can be lifted up safely and stably.

CAUTIONS!

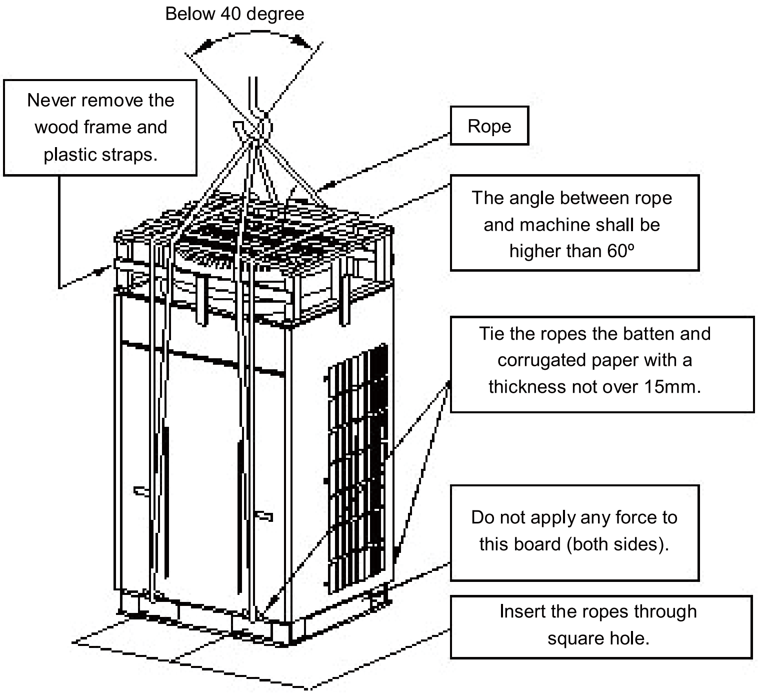
Do not attach the ropes to the lower wood frame of the packaging box.

Never remove any packaging materials.

As shown, insert two ropes through the square holes on the machine and protect the machine with batten and corrugated paper.

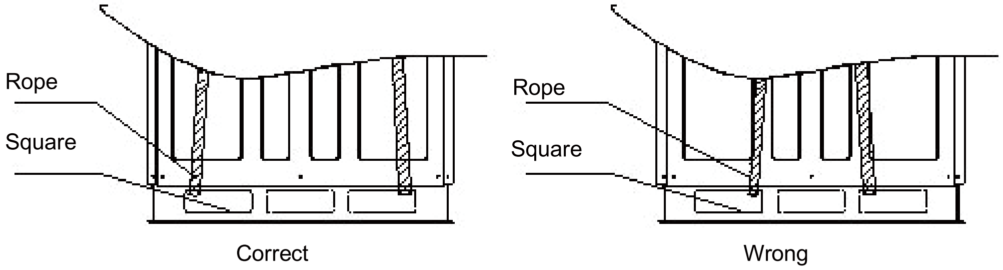
◆ The outdoor unit must be lifted by using the designated lift hole. During lifting, take care to protect the air conditioner and avoid knocking the metal parts, thus to prevent rusting in the future.

◆ When moving the outdoor unit, two ropes with enough length must be used to lift in four directions. To prevent the machine from drifting out of the center, the included angle of the ropes must be smaller than 40º when the machine is being lifted and moved. Shown below is GMV-Rm300W/D outdoor unit. It is similar to other outdoor units.


Below 40 degree
Never remove the wood frame and plastic straps.
Rope
The angle between rope and machine shall be higher than 60º
Tie the ropes the batten and corrugated paper with a thickness not over 15mm.
Do not apply any force to this board (both sides).
Insert the ropes through square hole.

◆ During lifting, the position of ropes is as shown below.

◆ Move the lower wood frame of the packaging box away and lift the unit to correct position.


Rope
Square
Correct
Rope
Square
Wrong

3.2 Selection of Installation Site

To ensure good operation of the air conditioner, the selection of installing position must be in accordance with the following principles:

◆ The unit may be installed on balcony, roof, special platform or any other position easy to install and able to support the weight.

◆ Select the place with good ventilation, where the exhaust is smooth and will not be circulated. Meanwhile, the exhaust from the unit shall not affect the neighbors.

◆ The air discharged from the unit will not flow back, and there shall be adequate service space around the machine.

◆ Around the unit there shall be no strong heat source or exhaust port of other equipment, nor any strong hot steam or inflammable gas.

◆ When several units are to be installed, adequate suction space shall be ensured to avoid short-circuit circulation.

◆ Install at a place that will not be affected by rainstorm in winter.

◆ Install at a place where there is no obstruction close to the air inlet or outlet.

◆ Around the machine body, drainage channel shall be provided for discharge of cold or warm water.

◆ The indoor connection pipe is easy to connect outdoors.

◆ The indoor and outdoor units shall be installed to minimize the length and bends of refrigerant pipe.

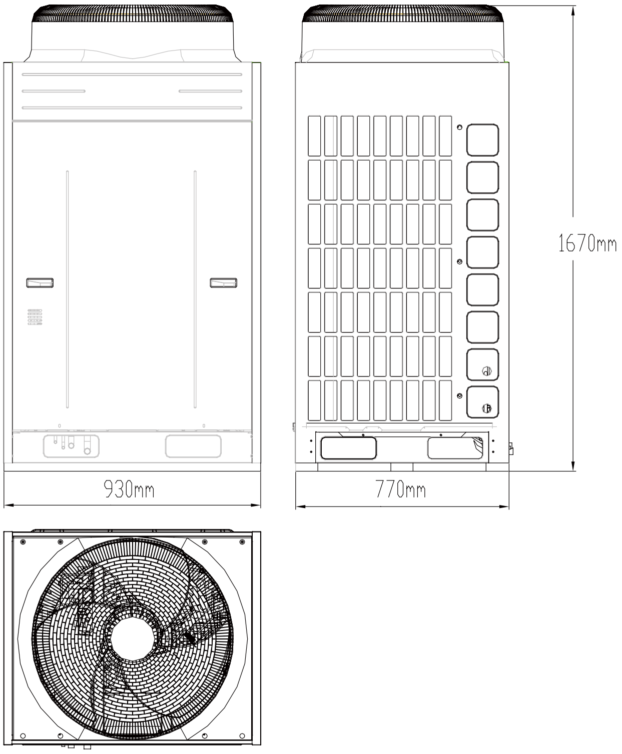
◆ Installat close to power socket for easy connection of the cables.

◆ Open space is required around the unit.

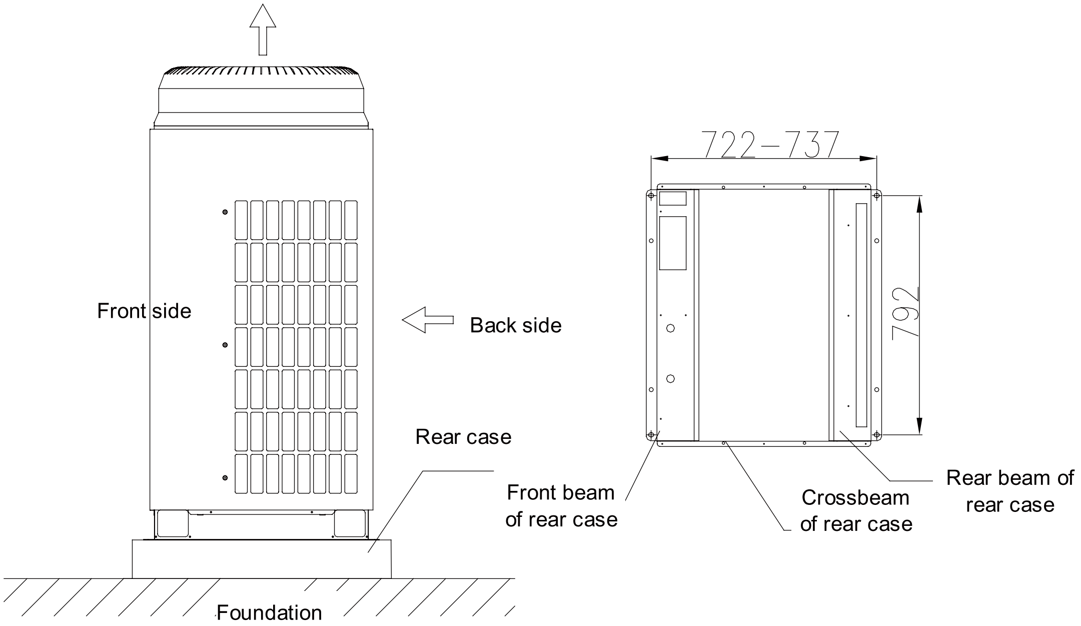
◆ Fasten the machine onto the supporting legs and base with M12 screw combination.

3.3 Outline Dimension Data and Installation Dimension Data

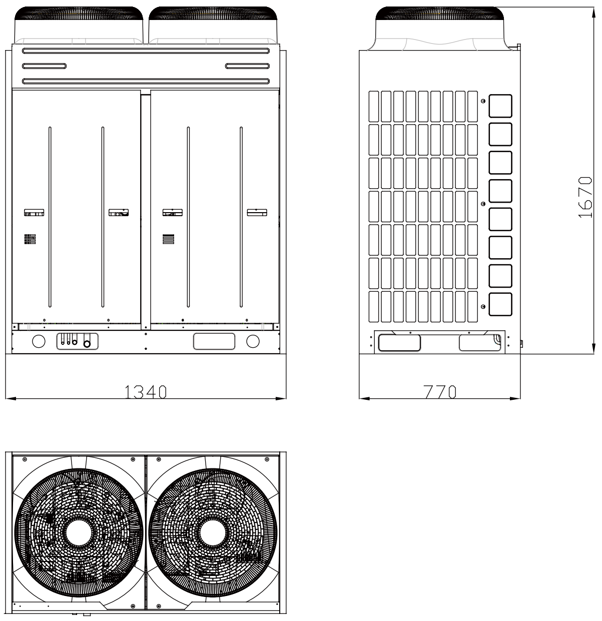
1.GMV-Pdhm224W/Na-M,GMV-Pdhm280W/Na-M Outline dimensions:



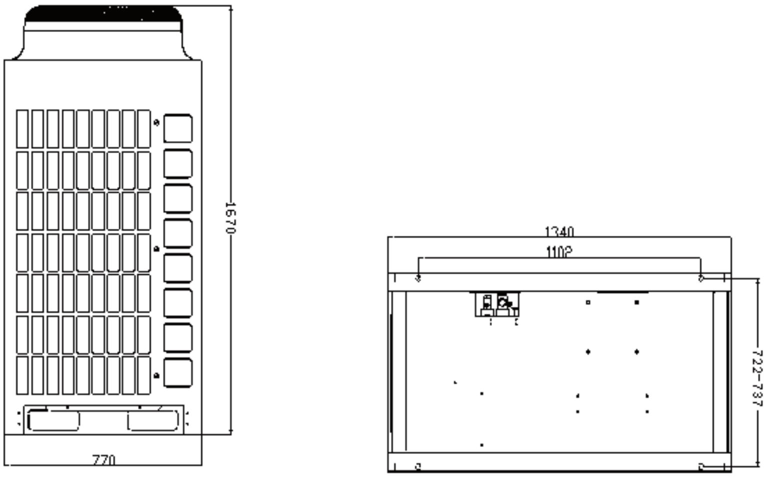
Mounting dimensions:


Front side
Back side
Rear case
Foundation
722–737
792
Front beam
of rear case
Crossbeam
of rear case
Rear beam of
rear case

2).GMV-Pdhm335W/Na-M,GMV-Pdhm400W/Na-M,GMV-Pdhm450W/Na-M Outline dimensions:

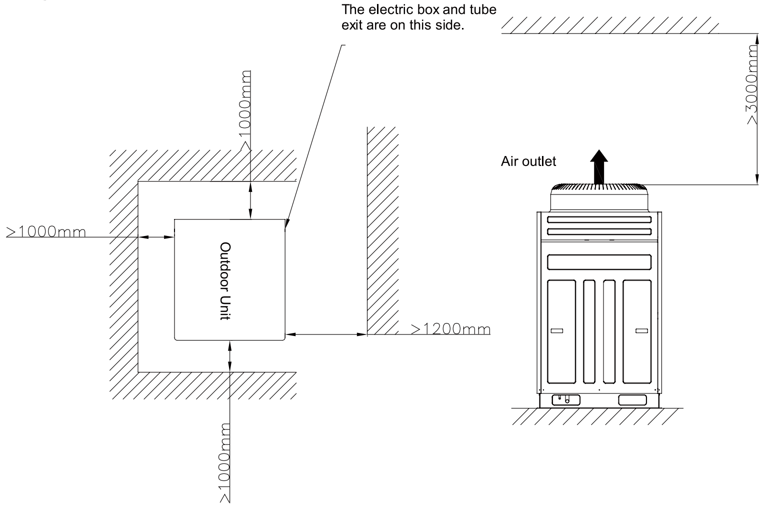

1340
770
1670

Mounting dimensions:

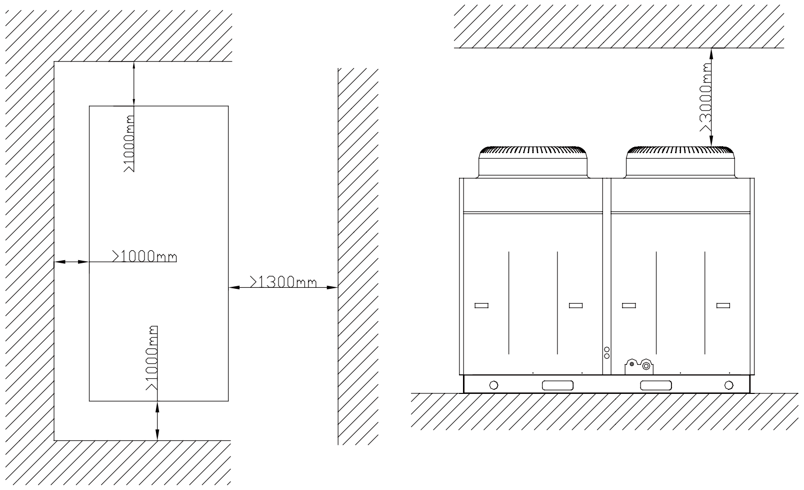

1670
770
1340
1102
722–737

3.4 Clearance Data

1) Clearance data of single unit GMV-Pdhm224W/Na-M, GMV-Pdhm280W/Na-M

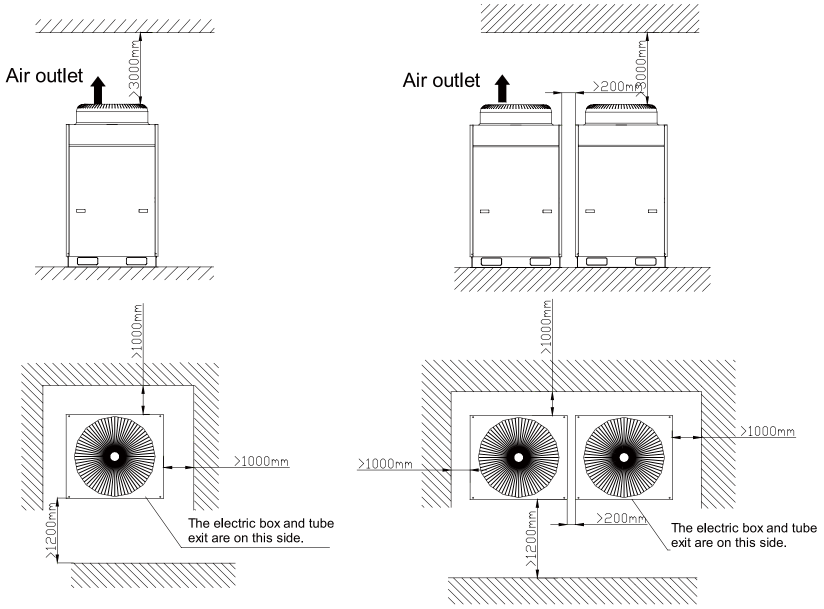

The electric box and tube exit are on this side.
>1000mm
>1000mm
Outdoor Unit
>1200mm
>1000mm
Air outlet
>3000mm

GMV-Pdhm335W/Na-M,GMV-Pdhm400W/Na-M,GMV-Pdhm450W/Na-M

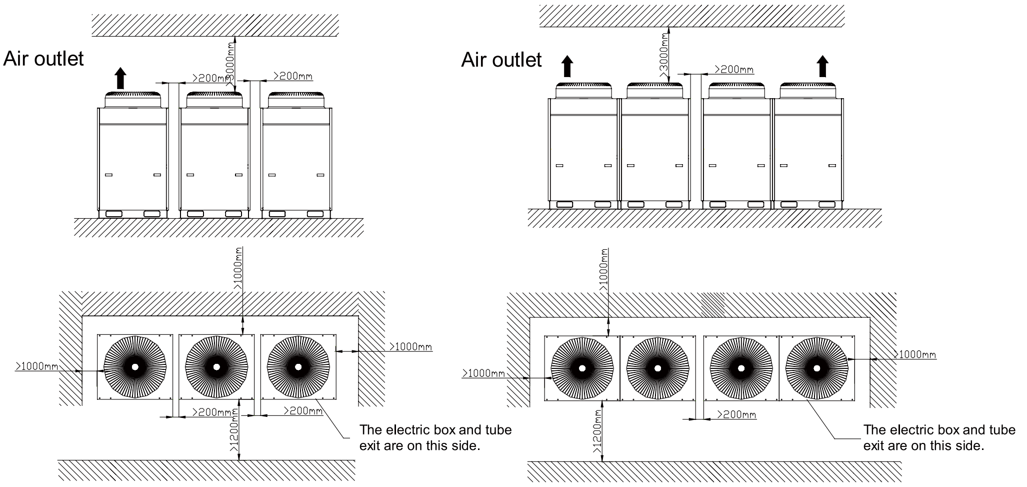

>1000mm
>1000mm
>1300mm
>1000mm
>3000mm

2) Clearance data of multiple unit

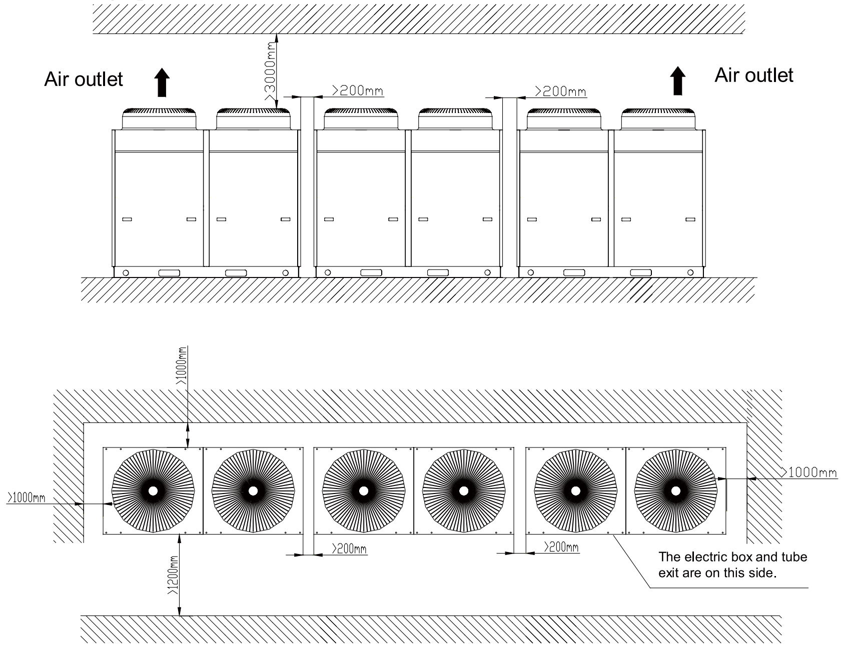
Requirements for mounting space dimensions of single-fan and single-fan double-module outdoor units


Air outlet
>3000mm
Air outlet
>200mm
>3000mm
>1000mm
>1000mm
>1200mm
The electric box and tube exit are on this side.
>1000mm
>1000mm
>1000mm
>200mm
>1200mm
The electric box and tube exit are on this side.

Requirements for mounting space dimensions of single-fan three-module and double-fan double-module outdoor units

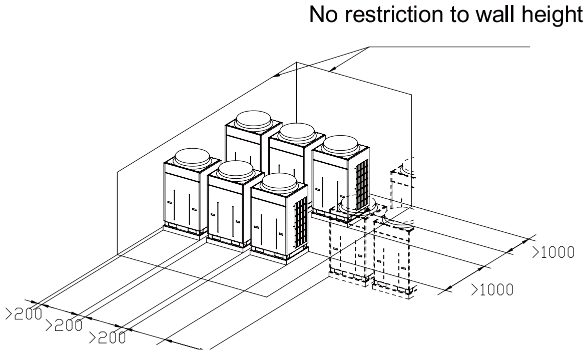

Air outlet
>3000mm
>200mm
>200mm
Air outlet
>3000mm
>200mm
>1000mm
>1000mm
>1000mm
>200mm
>200mm
>1200mm
The electric box and tube exit are on this side.
>1000mm
>1000mm
>1000mm
>200mm
>1200mm
The electric box and tube exit are on this side.

Requirements for mounting space dimensions of double-fan three-module outdoor unit

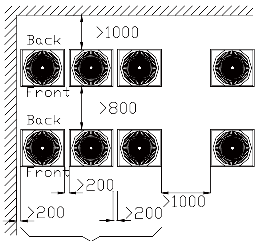

Air outlet
>3000mm
>200mm
>200mm
Air outlet
>1000mm
>1000mm
>1000mm
>200mm
>200mm
>1200mm
The electric box and tube exit are on this side.

3.5 Take Monsoons and Snow into Consideration

To ensure good ventilation, the top of unit shall be kept open and free of any obstructions. In case that the front side and left side (or right side) of the outdoor unit is open space, the unit shall be installed in the same direction.

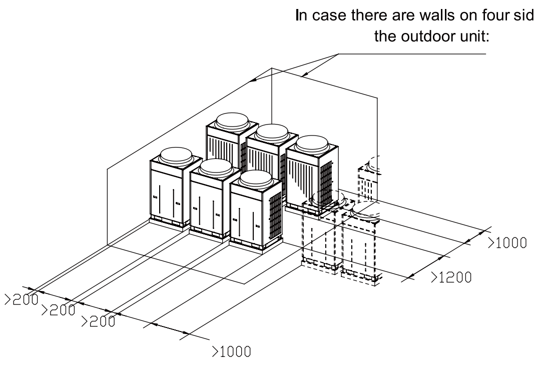

No restriction to wall height
>1000
>1000
>200
>200
>200

Distance to another outdoor unit beside>1000

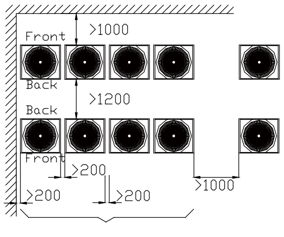

Back
>1000
Front
>800
Back
Front
>200
>1000
>200
>200

Max. three machines in line

Dimension of installation space for back-to-back installation is as below.

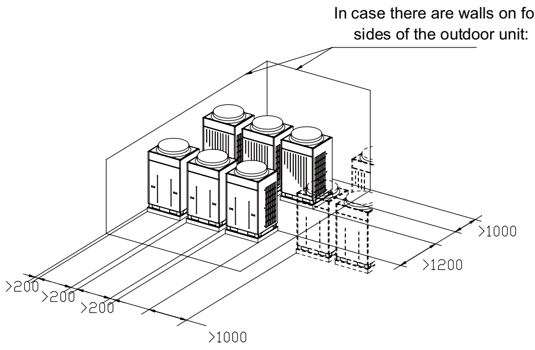

In case there are walls on four sides of the outdoor unit:
>1000
>1200
>200
>200
>200
>1000

Distance to another outdoor unit beside
＞1000

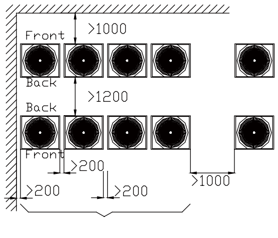

Front
>1000
Back
>1200
Back
Front
>200
>200
>200
>1000

Max. four machines in line

In case there are walls on four sides of the outdoor unit:
It is suggested to install the unit in the same direction.

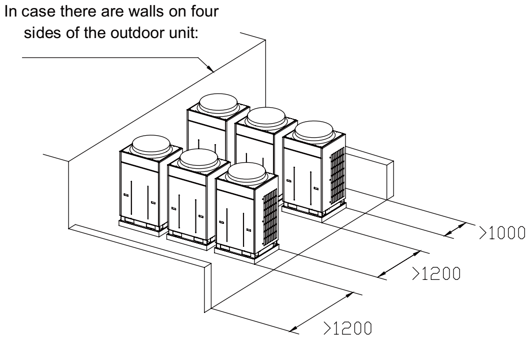

In case there are walls on four sides of the outdoor unit:
>1000
>1200
>200
>200
>200
>1000

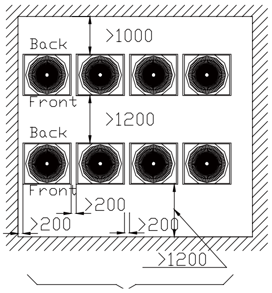
Distance to another outdoor unit beside


Front
>1000
Back
>1200
Back
Front
>200
>200
>200
>1000

Max. four machines in line

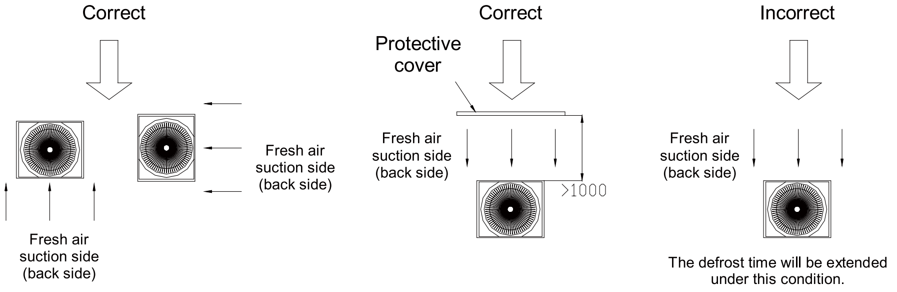
In case there are walls on four sides of the outdoor unit:
It is suggested to install the unit in the same direction.


In case there are walls on four sides of the outdoor unit:
>1000
>1200
>1200


Back
>1000
Front
>1200
Back
Front
>200
>200
>200
>1200

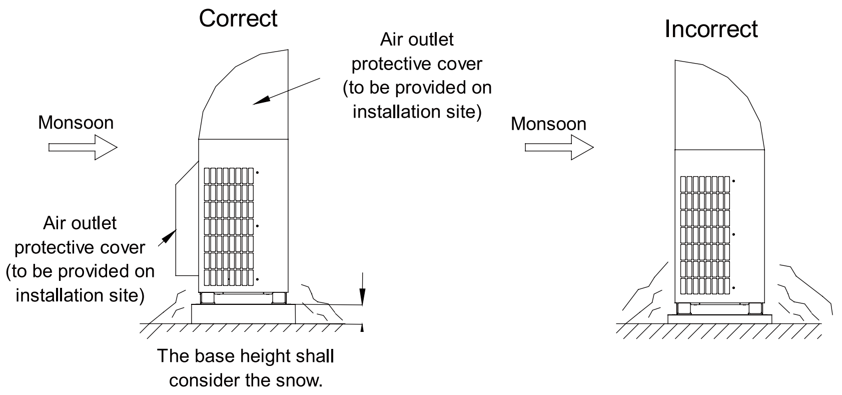
Max. four machines in line

The monsoon shall be taken into consideration when installing the outdoor unit.

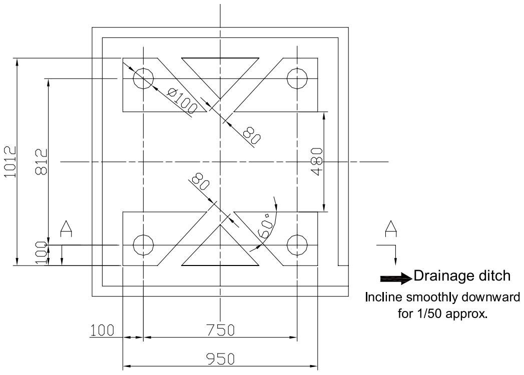

Correct
Fresh air suction side (back side)
Fresh air suction side (back side)
Correct
Protective cover
Fresh air suction side (back side)
>1000
Incorrect
Fresh air suction side (back side)
The defrost time will be extended under this condition.

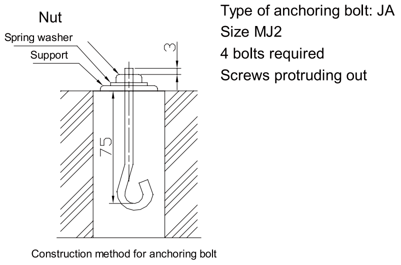
The snow shall be taken into consideration when installing the outdoor unit.

To prevent the snow from covering the air outlet and air intake, it is required to use an protective cover on air outlet and air intake, and use a higher foundation base.

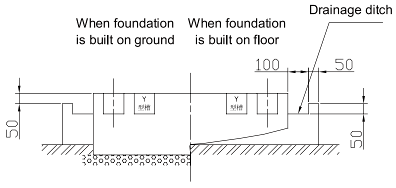

Correct
Air outlet protective cover (to be provided on installation site)
Monsoon
Air outlet protective cover (to be provided on installation site)
The base height shall consider the snow.
Incorrect
Monsoon

Installation foundation requirements for outdoor unit

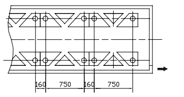

φ100
80
80
60°
1012
812
480
100
A
A
100
750
950
Drainage ditch
Incline smoothly downward for 1/50 approx.


Nut
Spring washer
Support
3
75
Type of anchoring bolt: JA
Size MJ2
4 bolts required
Screws protruding out

Construction method for anchoring bolt


When foundation is built on ground
When foundation is built on floor
Drainage ditch
100
50
50
50

A View


160
750
160
750

Centralized Installation of Multiple

Notes:

①. Concrete proportioning: Cement: sand: stone = 1: 2: 4. Meanwhile, 10 pieces of φ10mm reinforced steel bars shall be placed every 30mm.

②. Level the foundation surface with mortar and chamfer the sharp edge.

③. It is not needed to use gravel stone when the foundation is built on concrete floor, but the foundation surface must be deburred.

④. Drainage ditch shall be built around the foundation, so that the condensate from the equipment can be fully discharged.

⑤. To install the air conditioner on roof, please check the strength of building and take waterproof measures.

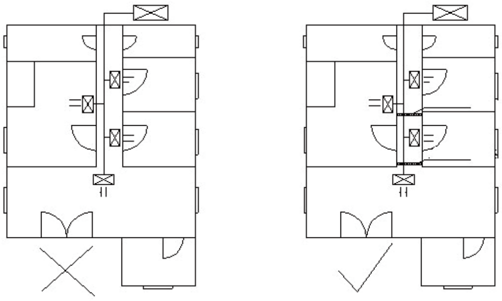
4 INSTALLATION OF INDOOR UNIT

4.1 Selection of installation site

When considering the position of indoor unit, please take special care on the following problems

1) Ensure optimal air flow and most uniform distribution of temperature in actual application;

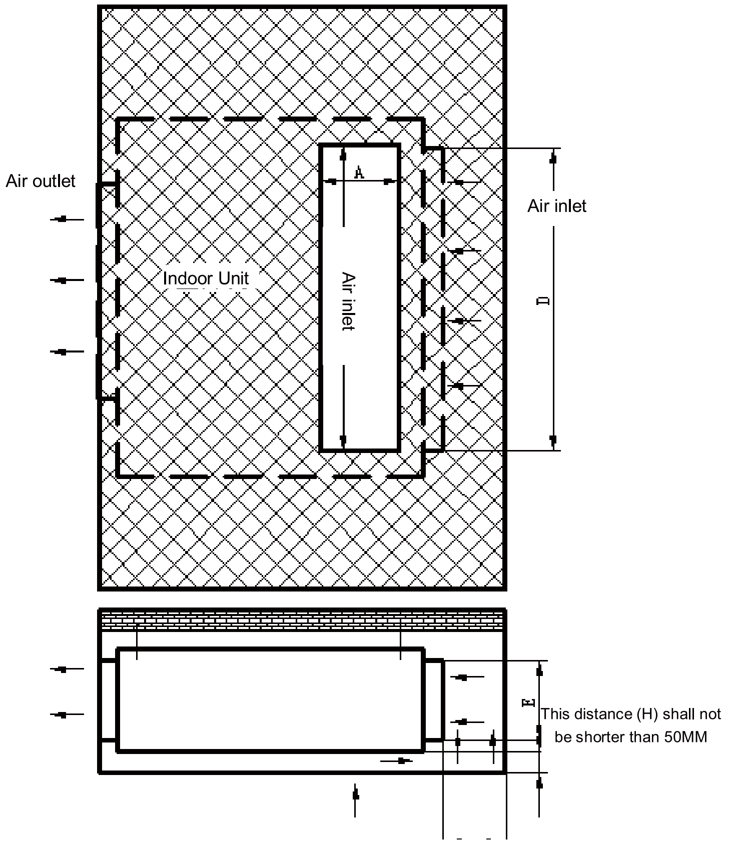
2) Avoid air backflow in different air-conditioning area;



3) The position of unit shall consider if the air intake will be affected. Especially for duct-type indoor unit, ensure

that the air intake frame must be at least 300mm from the back wall (back air return mode) or other obstructions.

4) For the back air return type unit and the return air inlet on the ceiling is right under on the unit, ensure that the base of unit shall be at least 50mm from the ceiling, and also ensure that the effective flow area between the base of unit and ceiling shall not be less than the area of air intake frame on the unit. For example:



This distance (H) shall not be shorter than 50MM

The distance of return air frame to back wall shall not be shorter than 300MM

Return air inlet area of unit: S1=D×E

Circumference of air inlet on ceiling: L=2×(A+B)

Effective air inlet area on ceiling: S2=L×H

S2 shall not be less than S1, and the distance between ceiling and unit (H) shall not be less than 50mm

5) The air inlet and outlet of indoor unit shall not have any obstructions blocking the air flow. The indoor unit shall be installed 2.3m above the ground.

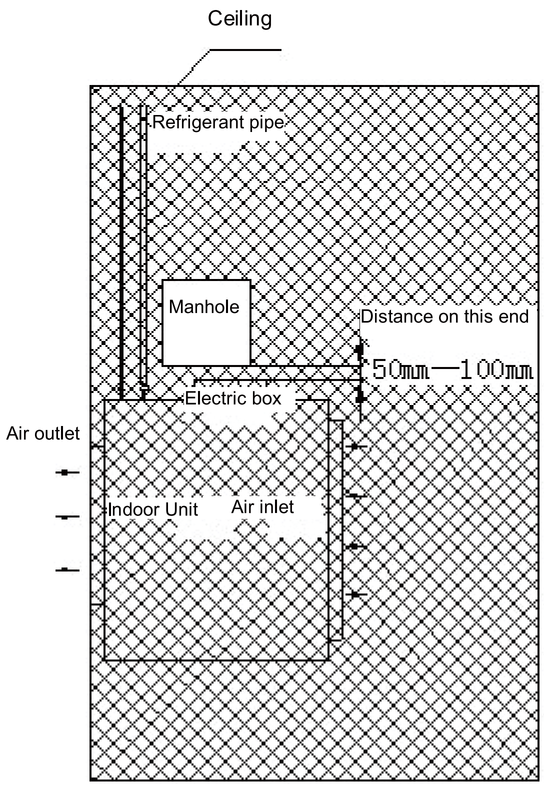
6) The indoor unit with rated cooling capacity higher than 5.6Kw shall be installed with supply air duct additionally. The air duct and air openings shall be so designed that they can reduce the noise.

7) The position of unit shall also consider enough space for repair work.

8) Position of manhole and air intake

Except that enough space for repair shall be considered during positioning of the unit, the position of manhole is also very important. If the manhole position is improper, it will bring difficulty to the maintenance and repair in the future.

The manhole size shall be at least the width between two shoulders of an adult. The size shall not be less than 450mm×450mm. For duct-type indoor unit, it shall be generally positioned on electric box side and within 50mm~100mm from the electric box. Meanwhile, this position shall also consider the repair of pipeline. For cassette indoor unit, main consideration shall be put to repair position of pipeline. Therefore, the manhole shall be positioned on one side 200mm~250mm from the connection pipe. See the schematics below:


Ceiling
Refrigerant pipe
Manhole
Distance on this end
50mm—100mm
Electric box
Air outlet
Indoor Unit
Air inlet

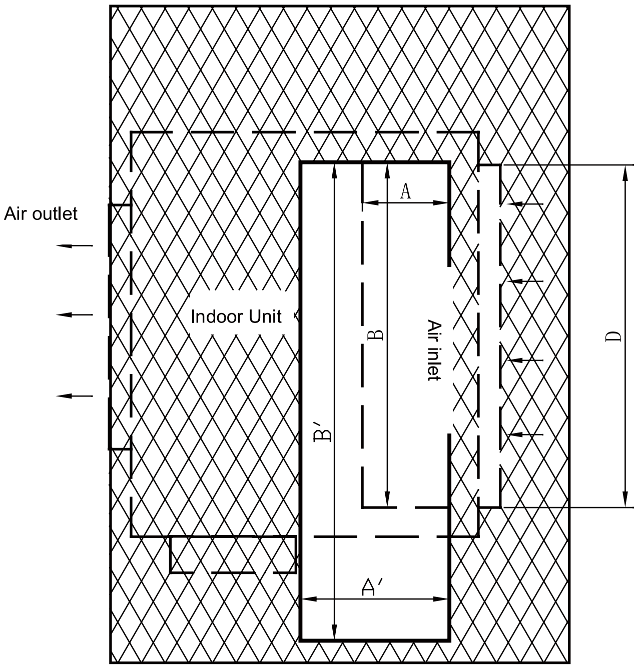
For duct-type indoor unit, the position of air inlet must be considered. The return air inlet is mainly used for air return to the unit, but on another hand it must be serve as the access to repair of the fan motor and filter. Therefore, except that it shall meet the air intake design requirements above, it must be accessible for replacement of the motor and filter.

a. Avoid positioning the return air inletclose to the door, wash room or kitchen; otherwise possible condensing or bad odor might be caused.

b. The lengthwise dimension of return air inlet shall not be less than 2/3 of the air inlet length on the unit.

c. If the air inlet is right behind the unit, its distance to the unit shall be not higher than 300mm. The widthwise dimension of air intake shall not be less than 200mm.

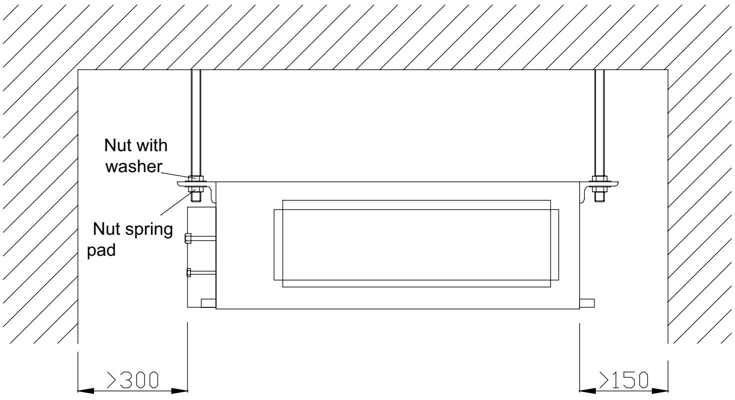
d. For the design that the return air inlet is also used as the manhole for electric box, repair position shall be provided on electric box side according to the principles above. Meanwhile, the position of this air inlet position must be considered if it can ensure removal and replacement of fan motor and filter. Therefore, the return air inlet shall, based on meeting the air flow design, be enlarged to 1.5~ 2 times of the original air flow area according to actual applications. See the schematics below:


Air outlet
Indoor Unit
A
B
Air inlet
B′
A′
D

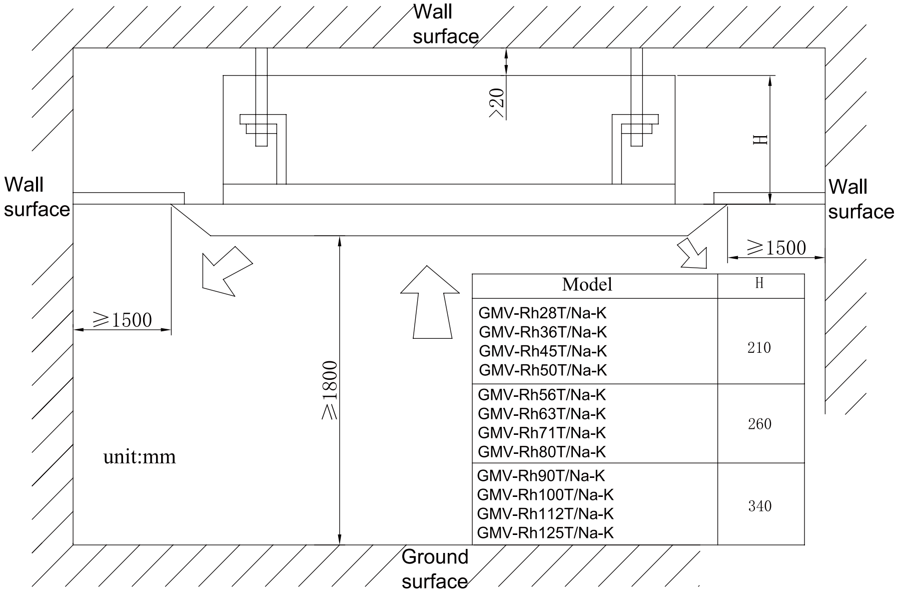
Area of original return air area: S=A×B
Required area of return air area: S’= A’ ×B’
S’≥ (1.5~2.0) S

4.2 Installation space requirements

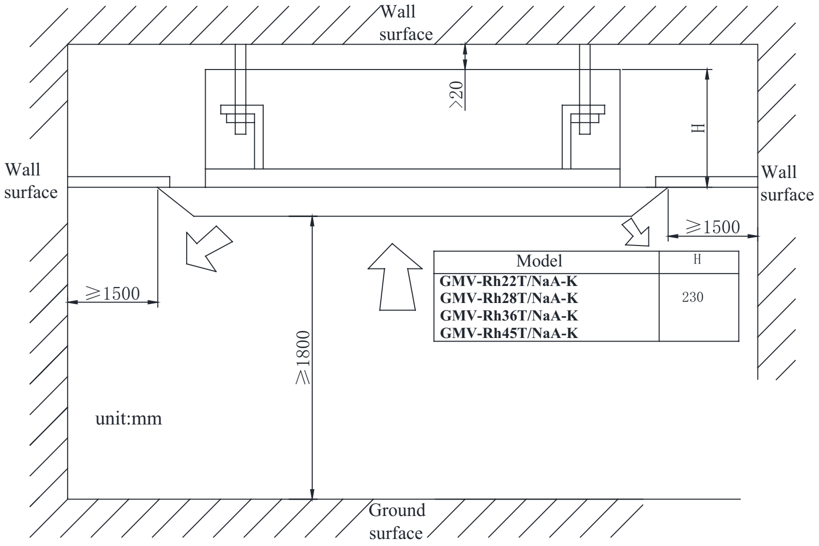
1).Ducted indoor unit, Concealed Duck High ESP Type indoor uint


Nut with washer
Nut spring pad
≥300
≥150

2).Cassette Type Indoor Unit


Wall surface
≥20
H
Wall surface
Wall surface
≥1500
≥1500
≥1800
unit:mm
Ground surface

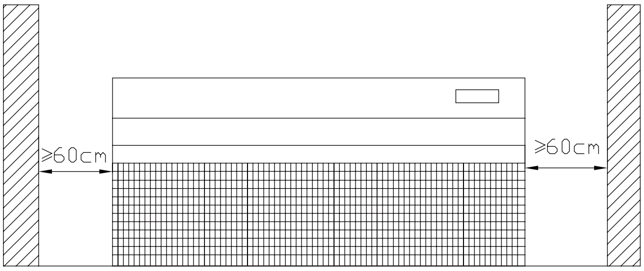
Model	H
GMV-Rh28T/Na-K GMV-Rh36T/Na-K GMV-Rh45T/Na-K GMV-Rh50T/Na-K	210
GMV-Rh56T/Na-K GMV-Rh63T/Na-K GMV-Rh71T/Na-K GMV-Rh80T/Na-K	260
GMV-Rh90T/Na-K GMV-Rh100T/Na-K GMV-Rh112T/Na-K GMV-Rh125T/Na-K	340

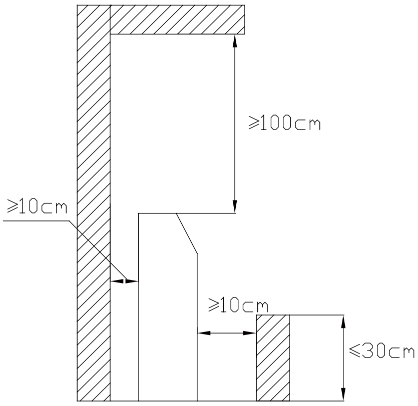

Wall surface
≥20
H
Wall surface
Wall surface
≥1500
≥1500
≥1800
unit:mm
Ground surface

Model	H
GMV-Rh22T/NaA-K GMV-Rh28T/NaA-K GMV-Rh36T/NaA-K GMV-Rh45T/NaA-K	230

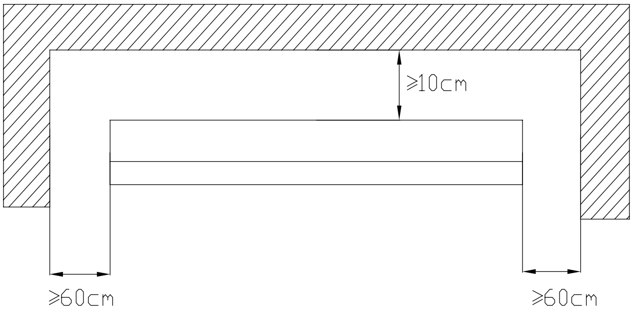
3). Floor Ceiling Type Indoor Unit

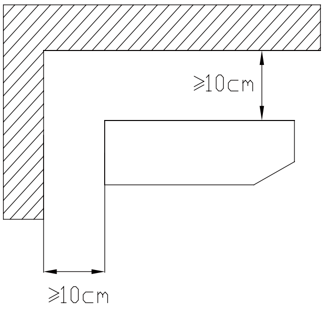
A. Flooring installation



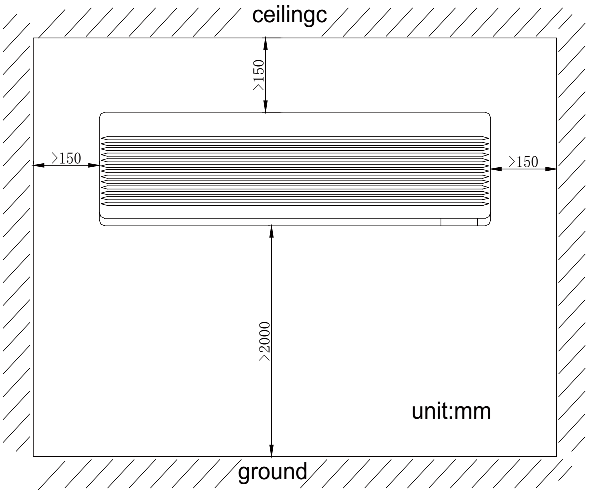

≥100cm
≥10cm
≥10cm
≤30cm

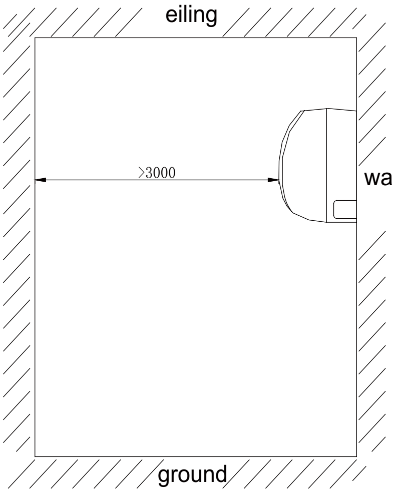
B. Ceiling installation


≥10cm
≥60cm
≥60cm



4).Wall Mounted Type Indoor Unit

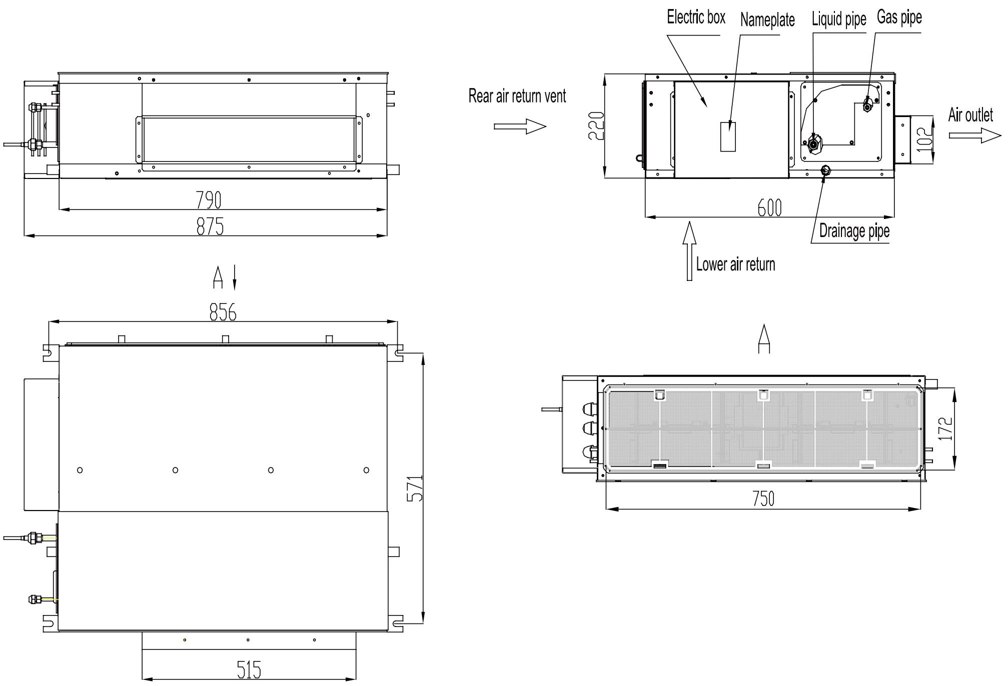

ceilingc
>150
>150
>150
>2000
unit:mm
ground


eiling
>3000
wall
ground

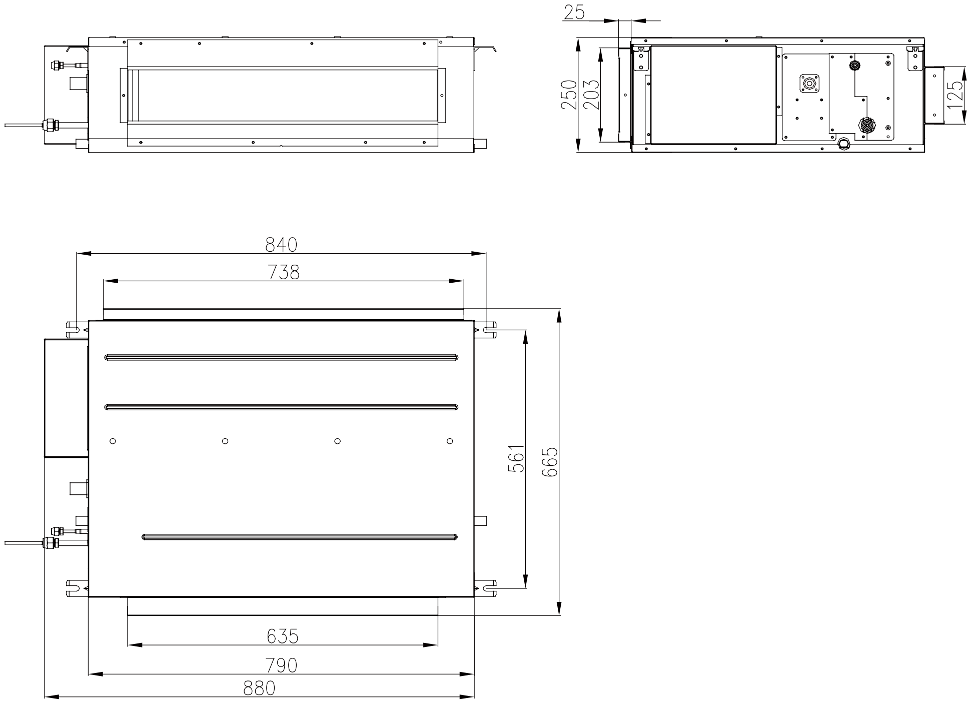
4.3 Dimensions Data

1) Ducted indoor unit

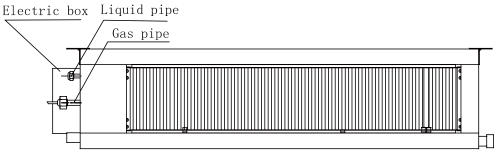
The following figure is applicable to the indoor units of GMV -Rh22P/Na-K, GMV-Rh25P/Na-K, GMV-Rh28P/Na-K, GMV-Rh32P/Na-K, GMV-Rh36P/Na-K

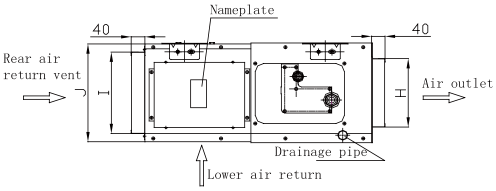

Electric box
Nameplate
Liquid pipe
Gas pipe
Rear air return vent
Air outlet
220
102
790
875
600
Drainage pipe
Lower air return
A
856
A
571
172
750
515

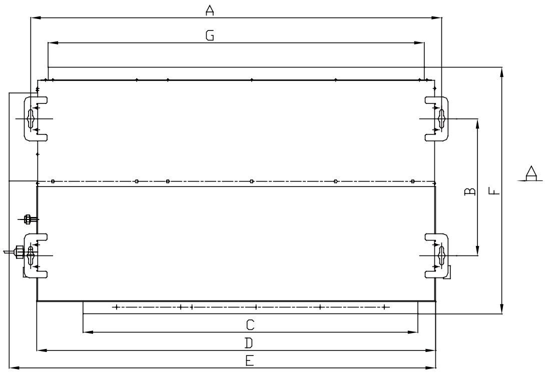
The following figure is applicable to the indoor units of GMV-Rh22P/NaB-K, GMV-Rh28P/NaB-K,GMV-Rh36P/NaB-K,GMV-Rh22PS/NaB-K,GMV-Rh28PS/NaB-K,GMV-Rh36PS/NaB-K

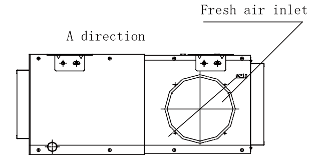

25
250
203
125
840
738
561
665
635
790
880

The following figure is applicable to the indoor units of GMV-Rh40P/Na-K, GMV-Rh45P/Na-K, GMV-Rh50P/Na-K, GMV-Rh56P/Na-K, GMV-Rh63P/Na-K, GMV-Rh71P/Na-K, GMV-Rh80P/Na-K, GMV-Rh90P/Na-K, GMV-Rh100P/Na-K, GMV-Rh112P/Na-K, GMV-Rh125P/Na-K GMV-Rh45P/NaB-K, GMV-Rh56P/NaB-K,GMV-Rh71P/NaB-K,GMV-Rh90P/NaB-K,GMV-Rh112P/NaB-K,GMV-Rh140P/NaB-K,GMV-Rh45PS/NaB-K, GMV-Rh56PS/NaB-K,GMV-Rh71PS/NaB-K,GMV-Rh90PS/NaB-K,GMV-Rh112PS/NaB-K,GMV-Rh140PS/NaB-K







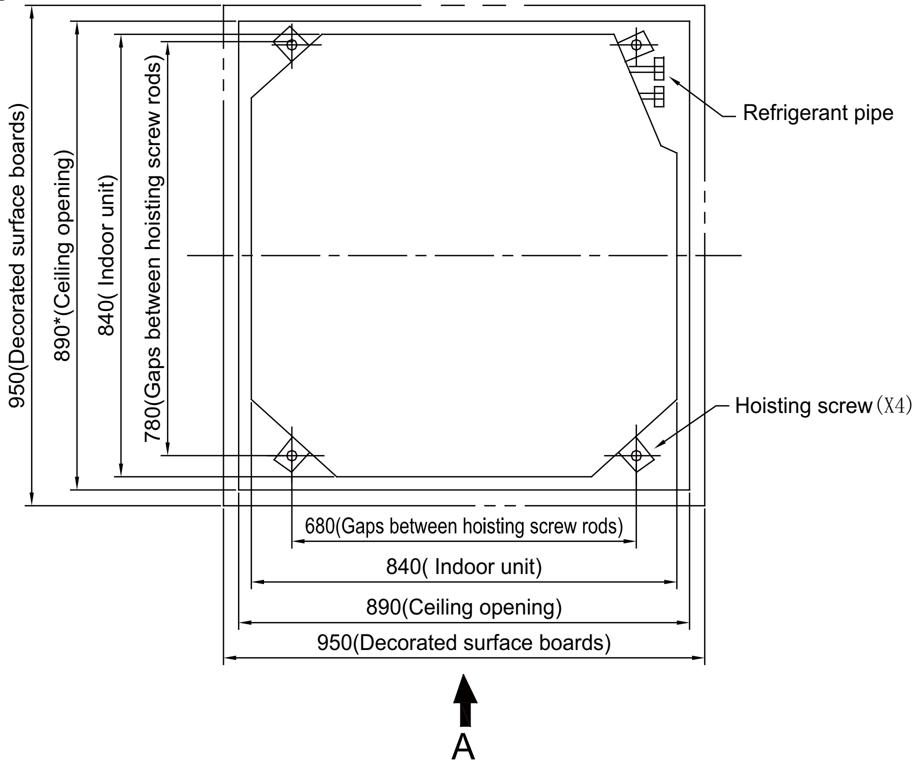


Instruction:According to the installation situation the lower air return or rear air return could be selected.

1. Look from the air outlet, the wiring is in the left of the unit.
2. The air cycle mode can be selected to be bottom air return or back air return according to the actual installation circumstances.

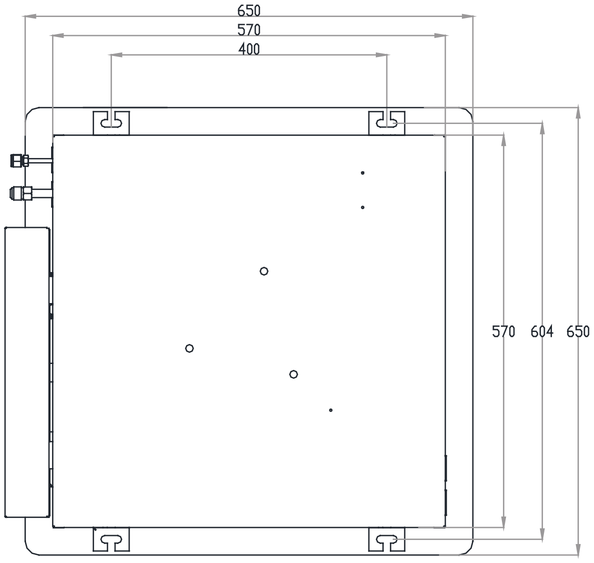
Model	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)	I(mm)	J(mm)
GMV-Rh40P/Na-K	932	430	738	892	980	736	738	125	203	266
GMV-Rh45P/Na-K	932	430	738	892	980	736	738	125	203	266
GMV-Rh50P/Na-K	932	430	738	892	980	736	738	125	203	266
GMV-Rh56P/Na-K	1112	420	918	1074	1159	736	918	207	207	260
GMV-Rh63P/Na-K	1112	420	918	1074	1159	736	918	207	207	260
GMV-Rh71P/Na-K	1112	420	918	1074	1159	736	918	207	207	260
GMV-Rh80P/Na-K	1112	420	918	1074	1159	736	918	207	207	260
GMV-Rh90P/Na-K	1350	420	1155	1310	1385	736	1155	207	207	260
GMV-Rh100P/Na-K	1350	420	1155	1310	1385	736	1155	207	207	260
GMV-Rh112P/Na-K	1350	420	1155	1310	1385	736	1155	207	207	260
GMV-Rh125P/Na-K	1350	420	1155	1310	1385	736	1155	207	207	260
GMV-Rh45P/NaB-K GMV-Rh45PS/NaB-K	932	430	738	892	980	721	738	125	203	266
GMV-Rh56P/NaB-K GMV-Rh56PS/NaB-K GMV-Rh71P/NaB-K GMV-Rh71PS/NaB-K	1114	420	918	1074	1159	736	1010	207	207	300
GMV-Rh90P/NaB-K GMV-Rh90PS/NaB-K GMV-Rh112P/NaB-K GMV-Rh112PS/NaB-K	1382	420	1155	1340	1425	736	1280	207	250	300
GMV-Rh140P/NaB-K GMV-Rh140PS/NaB-K	1382	420	1155	1340	1425	736	1280	207	250	300
GMV-Rh224P/NaB-M	1353	632	992	1314	1422	799	1088	192	343	389
GMV-Rh280P/NaB-M	1558	706	992	1518	1628	869	1308	192	396	454

2) Cassette type indoor unit


Refrigerant pipe
Hoisting screw（X4)
950(Decorated surface boards)
890*(Ceiling opening)
840(Indoor unit)
780(Gaps between hoisting screw rods)
680(Gaps between hoisting screw rods)
840(Indoor unit)
890(Ceiling opening)
950(Decorated surface boards)
A

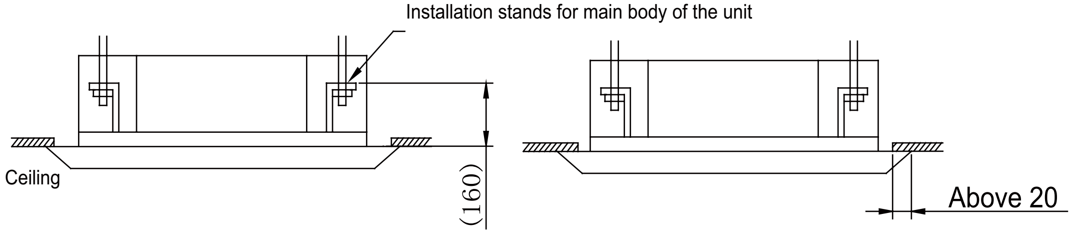
Installatioon dimension of mode GMV-Rh125T/Na-K,GMV-Rh112T/Na-K,GMV-Rh100T/Na-K,GMV-Rh90T/ Na-K,

GMV-Rh80T/ Na-K,GMV-Rh71T/ Na-K,GMV-Rh63T/ Na-K,GMV-Rh56T/ Na-K, GMV-Rh50T/ Na-K,GMV-Rh45T/ Na-K,GMV-Rh36T/ Na-K,GMV-Rh28T/ Na-K


650
570
400
570
604
650

Install dimension of mode GMV-Rh45T/ NaA-K, GMV-Rh36T/ NaA-K, GMV-Rh28T/ NaA-K, GMV-Rh22T/ NaA-K

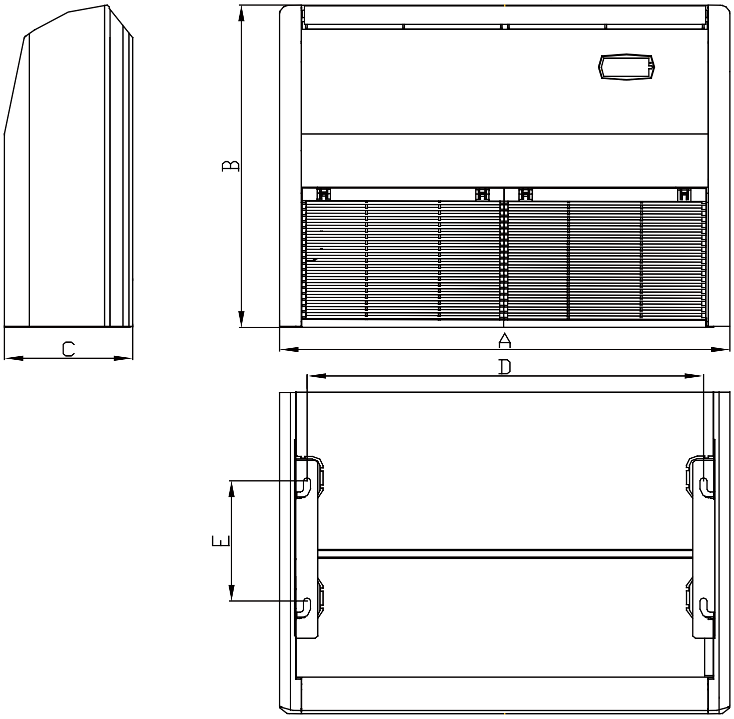
The drilling of holes in the ceiling must be done by the professional personnel.


Installation stands for main body of the unit
Ceiling
(160)
Above 20

Notes: The dimension for the ceiling openings with * marks can be as large as 910mm. But the overlapping sections of the ceiling and the decorated surface boards should be maintained at no less than 20mm.

3). Floor Ceiling Type Indoor Unit

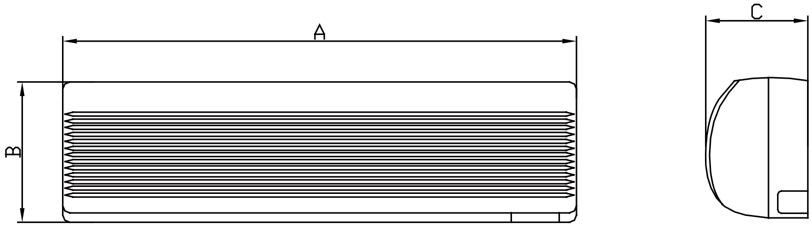
When installing the unit, you can refer the paper pattern for installation, and make sure that the drainage side must be 10mm lower that the other side in order to drain the condensation water fluently.



Unit: mm

model	A	B	C	D	E
GMV-Rh28Zd/Na-K	840	695	238	745	260
GMV-Rh36Zd/Na-K	840	695	238	745	260
GMV-Rh50Zd/Na-K	840	695	238	745	260
GMV-Rh71Zd/Na-K	1300	600	188	1220	260
GMV-Rh90Zd/Na-K	1590	695	238	1500	260
GMV-Rh112Zd/Na-K	1590	695	238	1500	260
GMV-Rh125Zd/Na-K	1590	695	238	1500	260

4). Wall Mounted Type Indoor Unit



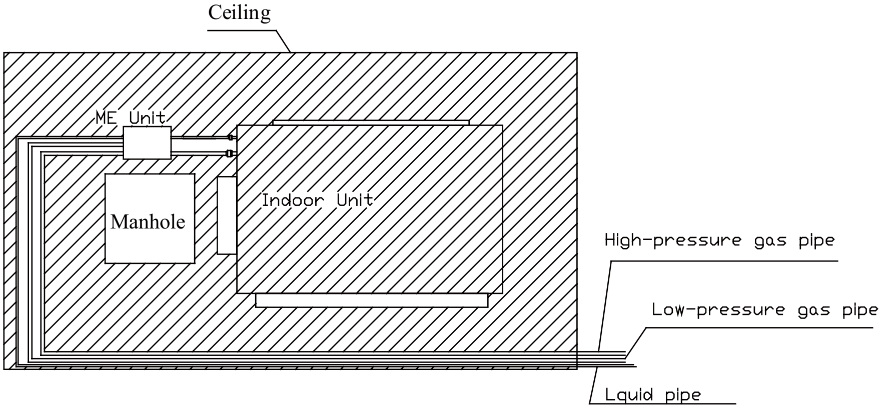
NO.	MODEL	Dimension(AXC XB mm)
1	GMV-Rh22G/Na-K	770×190×250
2	GMV-Rh28G/Na-K	770×190×250
3	GMV-Rh36G/Na-K	830×189×285
4	GMV-Rh45G/Na-K	830×189×285
5	GMV-Rh50G/Na-K	1020×228×310
6	GMV-Rh56G/Na-K	1020×228×310
7	GMV-Rh71G/Na-K	1178×227×326
8	GMV-Rh80G/Na-K	1178×227×326

5 INSTALLATION OF MODE EXCHANGER

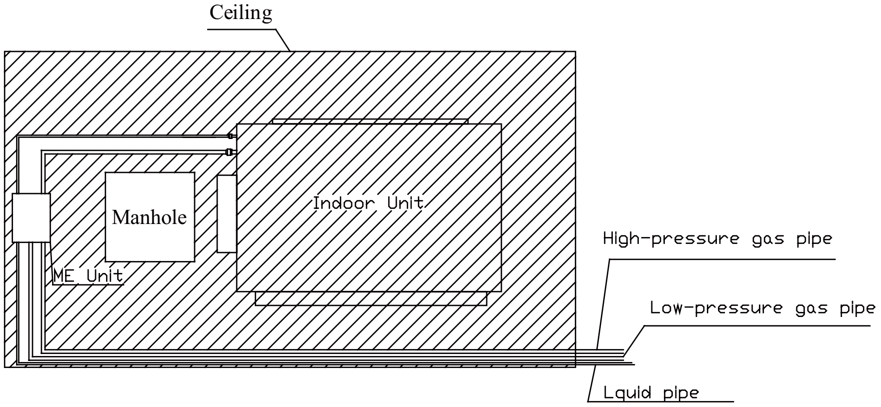
5.1 Selection of installation site

The mode exchanger sub-assembly shall be installed close to the manhole or return air inlet(Notes: The precondition for installation close to return air inlet is that it will not affect the normal air intake of the unit and can ensure repair of the components).

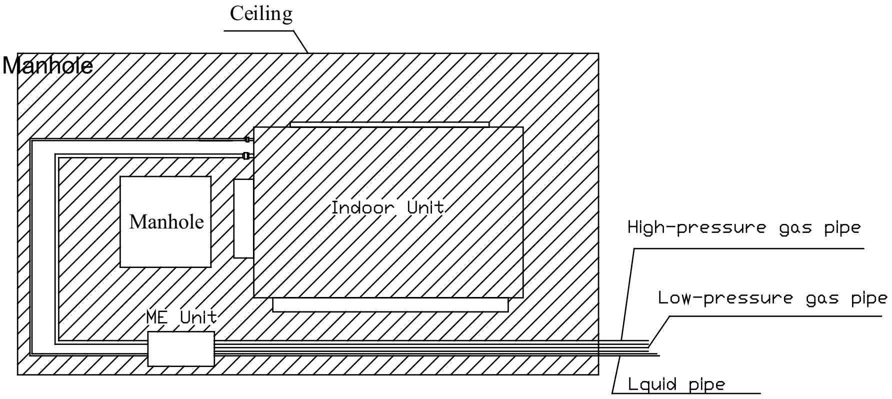
The following diagram is the standard position of the ME UNIT installation.


Ceiling
ME Unit
Manhole
Indoor Unit
High-pressure gas pipe
Low-pressure gas pipe
Lquid pipe

Standard position No.1

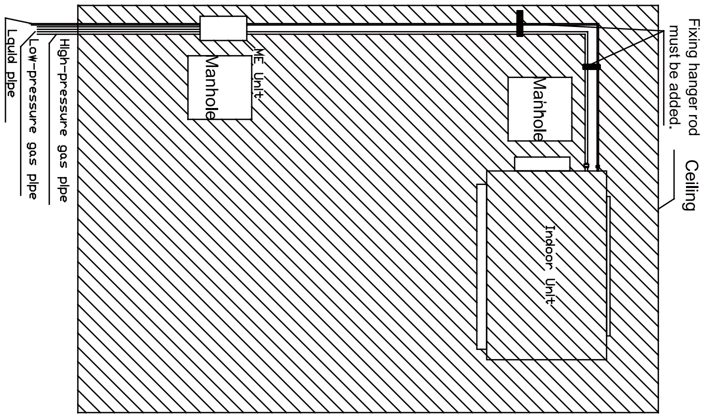

Ceiling
Manhole
Indoor Unit
ME Unit
High-pressure gas pipe
Low-pressure gas pipe
Lquid pipe

Standard position No.2


Ceiling
Manhole
Manhole
Indoor Unit
ME Unit
High-pressure gas pipe
Low-pressure gas pipe
Lquid pipe

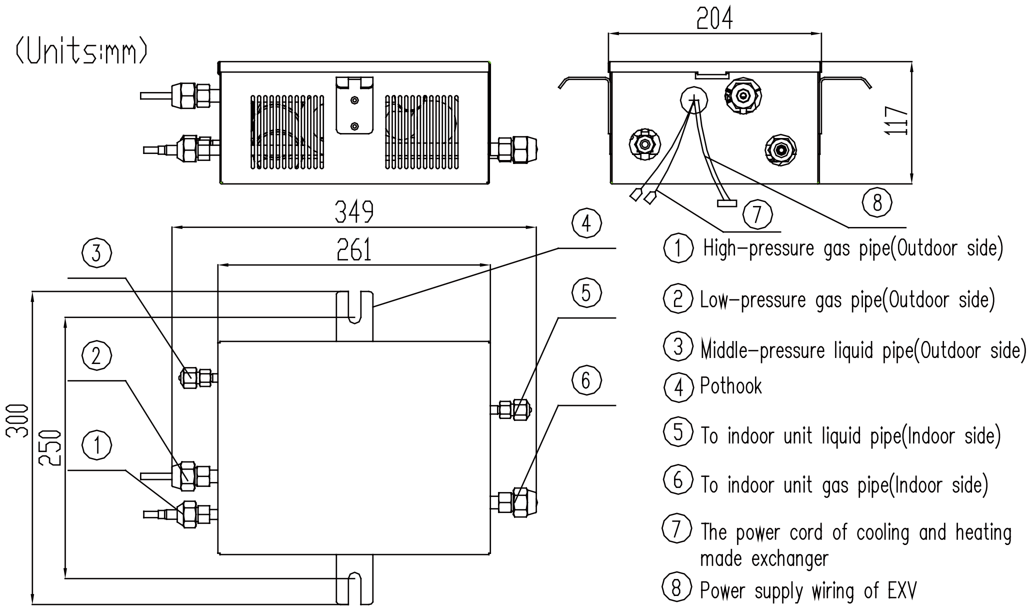
Standard position No.3

If the installation site of mode exchanger is far from the manhole of indoor unit due to construction structure, the mode exchanger must be provided with a manhole separately.


Lquid pipe
Low-pressure gas pipe
High-pressure gas pipe
ME Unit
Manhole
Manhole
Indoor Unit
Fixing hanger rod must be added.
Ceiling

5.2 Dimension

The dimension of CHS22~ CHS224:


(Units:mm)
204
117
349
261
300
250
①
②
③
④
⑤
⑥
⑦
⑧

① High-pressure gas pipe(Outdoor side)

② Low-pressure gas pipe(Outdoor side)

③ Middle-pressure liquid pipe(Outdoor side)

④ Pothook

⑤ To indoor unit liquid pipe(Indoor side)

⑥ To indoor unit gas pipe(Indoor side)

⑦ The power cord of cooling and heating made exchanger

⑧ Power supply wiring of EXV

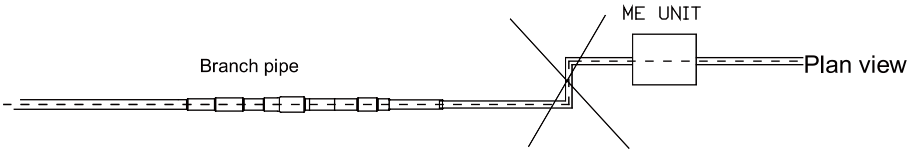
5.3 Cautions for Installation

A. The mode exchanger must be installed by using hanger rod. During installation, the components must be kept vertically upright according to the indicated direction;

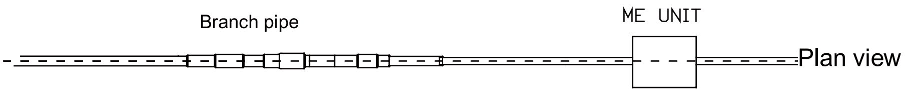
B. During installation, enough space shall be considered for removal of the components. The pipe shall not be jammed between the components.

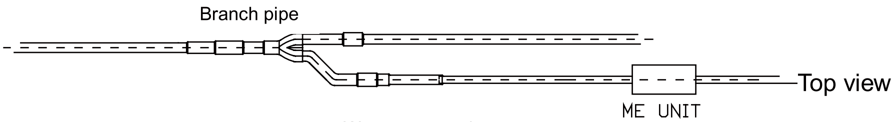
C. The distance of the component to the indoor unit along the pipe shall not be higher than 5000mm;

D. The component shall be installed in a straight line to the inlet pipe and branch pipe (See schematics below):


ME UNIT
Branch pipe
Plan view

Wrong connection

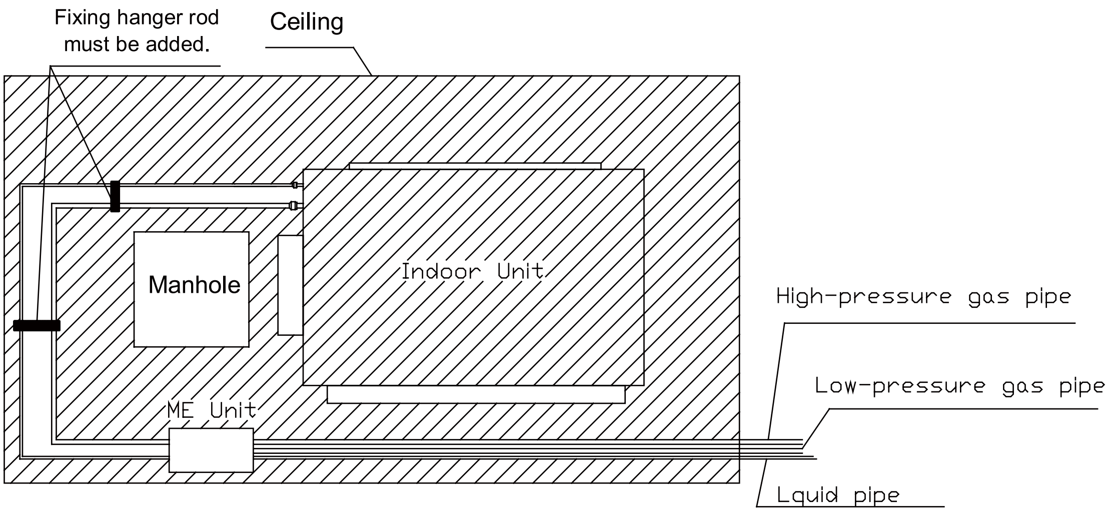

Branch pipe
ME UNIT
Plan view


Branch pipe
Top view
ME UNIT

Wrong connection

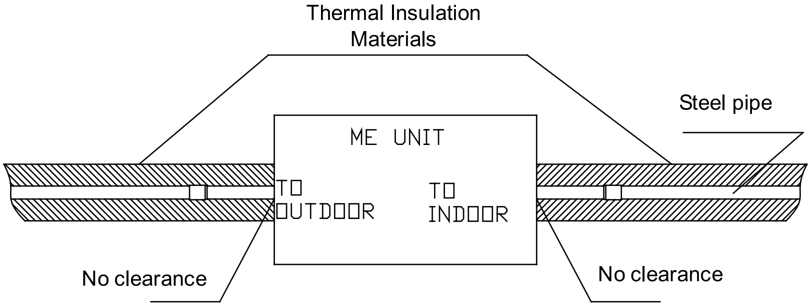
E. The diameter of the copper tube from mode exchanger to indoor unit is small. When the pipe from mode exchanger to indoor unit is longer than 1.5m, this pipe section, including the big pipe section, must be added with hanger rod.

See the schematics below:


Fixing hanger rod
must be added.
Ceiling
Manhole
Indoor Unit
High-pressure gas pipe
Low-pressure gas pipe
ME Unit
Lquid pipe

G. After completing the welding, use the strap to bundle the control wires along the pipeline.

H. After airtight test of the system, the mode exchanger must be thermally insulated. There shall be no copper tube exposed; otherwise, condensing and dripping might be caused.


Thermal Insulation
Materials
Steel pipe
ME UNIT
TO
OUTDOOR
TO
INDOOR
No clearance
No clearance

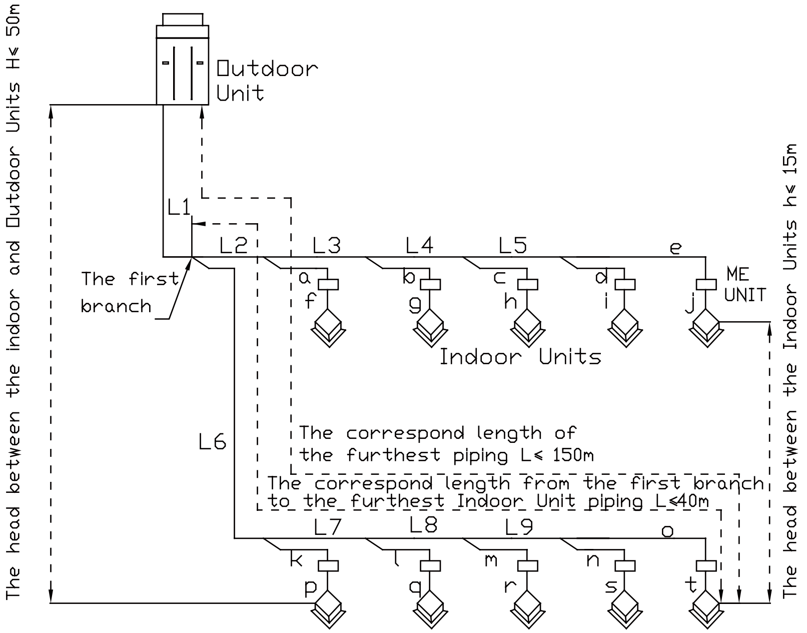
6 INSTALLATION REQUIREMENTS OF REFRIGERANT PIPING

6.1 Specification

R410A refrigerant system		
External Diameter(mm/inch)	Thickness(mm)	Type
Φ6.35(1/4)	≥0.8	0
Φ9.52(3/8)	≥0.8	0
Φ12.70(1/2)	≥0.8	0
Φ15.88(5/8)	≥1	0
Φ19.05(3/4)	≥1	1/2H
Φ22.2(7/8)	≥1.5	1/2H
Φ25.40(1/1)	≥1.5	1/2H
Φ28.60(9/8)	≥1.5	1/2H
Φ34.90(11/8)	≥1.5	1/2H
Φ38.10(12/8)	≥1.5	1/2H
Φ41.30(13/8)	≥1.5	1/2H
Φ44.45(7/4)	≥1.5	1/2H
Φ54.1(17/8)	≥1.5	1/2H

6.2Allowable Length and Height Differences of the Refrigerant Piping between the Indoor and Outdoor Units

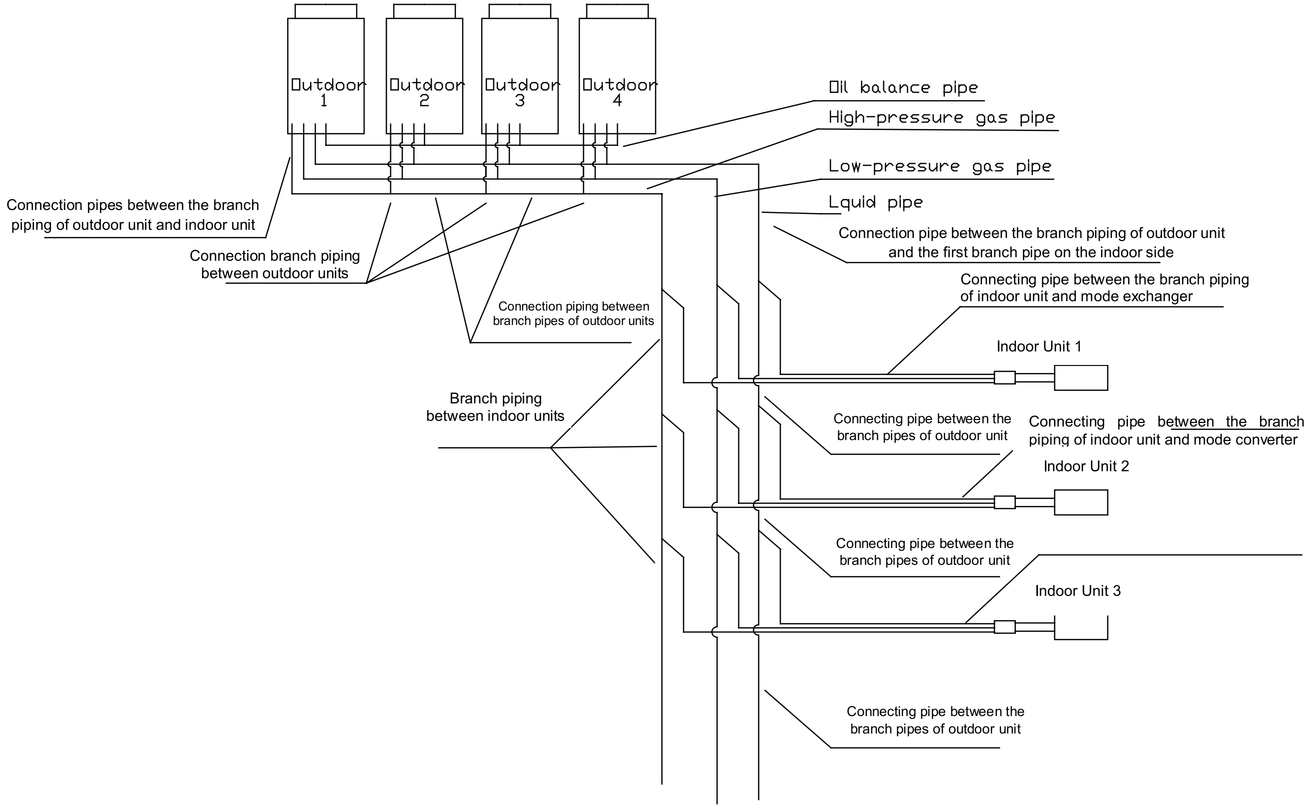
R410A refrigerant system		Allowable (m/ft) value	Fitting pipe
Total length (actual length) of fitting pipe		500/1640	L1+L2+L3+L4+… +L9+a+b+…+s+t
Length of the furthest fitting pipe	Actual length	150/492	L1+L6+L7+L8+L9+o+t
	Equivalent length	175/574	
Equivalent length of fitting pipe from the 1st branch joint to farthest indoor unit		40/131.2	L1+L6+L7+L8+L9+o+t
Height differences between indoor unit and outdoor unit	Outdoor unit at upper	50/164	——
	Outdoor unit at lower	40/131.2	——
Height differences between indoor units		15/49.2	——


The head between the indoor and Outdoor Units H≤ 50m
Outdoor Unit
L1
L2
L3
L4
L5
e
ME UNIT
a
b
c
d
j
f
g
h
i
The first branch
Indoor Units
L6
The correspond length of the furthest piping L≤ 150m
The correspond length from the first branch to the furthest Indoor Unit piping L≤40m
L7
L8
L9
o
k
l
m
n
p
q
r
s
t
Indoor Units
The head between the Indoor Units h≤ 15m

The correspond length is designed according to an interval of 0.5m of the Y-type branch pipes

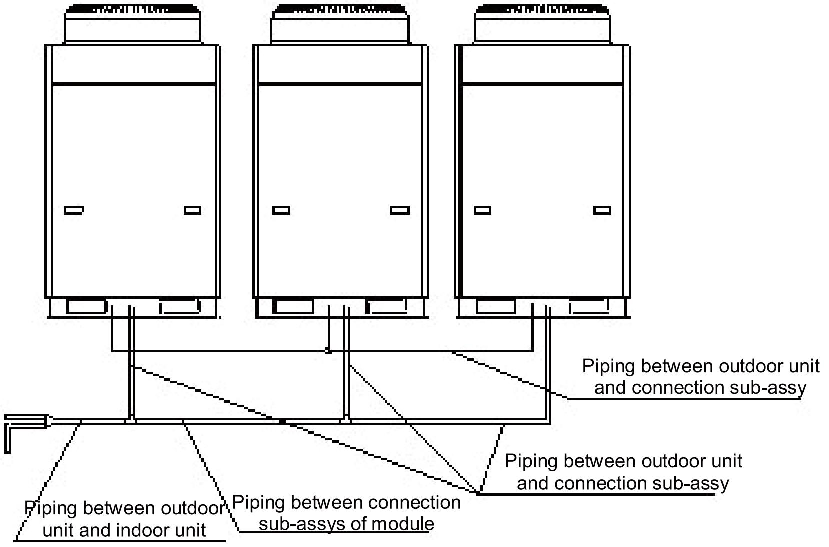
6.3 Selection of diameter of branch pipe and connection pipe

System Piping Schematics


Outdoor 1
Outdoor 2
Outdoor 3
Outdoor 4
Oil balance pipe
High-pressure gas pipe
Low-pressure gas pipe
Liquid pipe
Connection pipes between the branch piping of outdoor unit and indoor unit
Connection branch piping between outdoor units
Connection piping between branch pipes of outdoor units
Connection pipe between the branch piping of outdoor unit and the first branch pipe on the indoor side
Connecting pipe between the branch piping of indoor unit and mode exchanger
Indoor Unit 1
Branch piping between indoor units
Connecting pipe between the branch pipes of outdoor unit
Connecting pipe between the branch piping of indoor unit and mode converter
Indoor Unit 2
Connecting pipe between the branch pipes of outdoor unit
Indoor Unit 3
Connecting pipe between the branch pipes of outdoor unit

1) Selection of the branch piping between outdoor units

R410A refrigerant system	Total Capacity of the Outdoor Unit (C)	Model
Y-Type Branch Pipe	224≤C≤960	ML01R
	960<C	ML02R


Piping between outdoor unit and connection sub-assy
Piping between outdoor unit and connection sub-assy
Piping between outdoor unit and indoor unit
Piping between connection sub-assys of module

The diameter of the piping (the main pipe) from the Outdoor Unit to the first branch joint

A. For a single-module system, the diameter of the piping from the Outdoor Unit to the first branch joint shall be selected according to the diameter of refrigerant piping for outdoor unit. The diameter of the refrigerant piping for basic module outdoor unit is as below:

Basic Model	Piping Connections		
	Liquid (mm)	Suction Gas (mm)	Discharge Gas (mm)
GMV-Pdhm224W/Na-M	Φ9.5	Φ22.2	Φ19.1
GMV-Pdhm280W/Na-M	Φ9.5	Φ22.2	Φ19.1
GMV-Pdhm335W/Na-M	Φ12.7	Φ28.6	Φ19.1
GMV-Pdhm400W/Na-M	Φ12.7	Φ28.6	Φ22.2
GMV-Pdhm450W/Na-M	Φ12.7	Φ28.6	Φ22.2

B. If it is a multi-module system,

The diameter of the branch piping between modules and outdoor unit shall be selected based on the diameter of the refrigerant piping of basic module outdoor unit. The diameter of the refrigerant piping of basic module outdoor unit is as below:

Basic Model	Piping Connections		
	Lquid pipe (mm)	Low-pressure gas pipe (mm)	High-pressure gas pipe (mm)
GMV-Pdhm224W/Na-M	Φ9.5	Φ22.2	Φ19.1
GMV-Pdhm280W/Na-M	Φ9.5	Φ22.2	Φ19.1
GMV-Pdhm335W/Na-M	Φ12.7	Φ28.6	Φ19.1
GMV-Pdhm400W/Na-M	Φ12.7	Φ28.6	Φ22.2
GMV-Pdhm450W/Na-M	Φ12.7	Φ28.6	Φ22.2

The diameter of the refrigerant piping between the branch pipes of basic module outdoor unit is as follows:

		Diameter of the refrigerant piping between the branch pipes of outdoor unit		
		Lquid pipe (mm)	High-pressure gas pipe (mm)	Low-pressure gas pipe (mm)
Total rated capacity Q of upstream outdoor unit	450≥Q	Φ12.7	Φ28.6	Φ28.6
	960≥Q>450	Φ19.1	Φ34.9	Φ34.9
	1580≥Q>960	Φ22.2	Φ41.3	Φ41.3
	Q>1580	Φ25.4	Φ41.3	Φ54.1

The diameter of the piping from the end branch pipe of outdoor unit to the first branch pipe of indoor unit shall be selected according to the capacity of combined basic modules as below:

Multple Model	Uses combination of	Piping Connections		
		Lquid pipe (mm)	Low-pressure gas pipe (mm)	High-pressure gas pipe (mm)
GMV-Pdhm504W2/Na-M	GMV-Pdhm224W/Na-M; GMV-Pdhm280W/Na-M	Φ15.9	Φ28.6	Φ22.2
GMV-Pdhm560W2/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M	Φ15.9	Φ28.6	Φ28.6
GMV-Pdhm615W2/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M	Φ15.9	Φ28.6	Φ28.6
GMV-Pdhm680W2/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M	Φ15.9	Φ34.9	Φ28.6
GMV-Pdhm730W2/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6
GMV-Pdhm800W2/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M	Φ19.1	Φ34.9	Φ28.6
GMV-Pdhm850W2/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6
GMV-Pdhm900W2/Na-M	GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ34.9	Φ28.6
GMV-Pdhm960W3/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M	Φ19.1	Φ34.9	Φ28.6
GMV-Pdhm1010W3/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ28.6
GMV-Pdhm1070W3/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1130W3/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1180W3/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1250W3/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1300W3/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1350W3/Na-M	GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ19.1	Φ41.3	Φ34.9
GMV-Pdhm1410W4/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ34.9
GMV-Pdhm1460W4/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ41.3
GMV-Pdhm1515W4/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm335W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ41.3
GMV-Pdhm1580W4/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ22.2	Φ44.5	Φ41.3
GMV-Pdhm1630W4/Na-M	GMV-Pdhm280W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3
GMV-Pdhm1700W4/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3
GMV-Pdhm1750W4/Na-M	GMV-Pdhm400W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3
GMV-Pdhm1800W4/Na-M	GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M; GMV-Pdhm450W/Na-M	Φ25.4	Φ54.1	Φ41.3

Notes:

①. For outdoor unit with total rated capacity less than 20.0kW

②. If the length from outdoor unit to the farthest indoor unit is longer than 50m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. diameter shall not be more than Φ54.1mm.

③. For outdoor unit with total rated capacity more than or equal to 20.0kW and less than 60.0kW

④. If outdoor unit is a single-unit system or a single-module system, and if the length from outdoor unit to the farthest indoor unit is longer than 70m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. diameter shall not be more than Φ54.1mm.

⑤. If outdoor unit is a module parallel system, and if the length of the first branch pipe of outdoor unit to the farthest indoor unit is longer or equal to 70m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from the first branch pipe of outdoor unit to the first branch pipe of the indoor unit. The max. diameter shall not be more than Φ54.1mm.

⑥. For outdoor unit with total rated capacity more than 60.0.0kW

⑦. If outdoor unit is a single-unit system or a single-module system, and if the length from outdoor unit to the farthest indoor unit is longer than 90m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from outdoor unit to the first branch pipe of indoor unit. The max. diameter shall not be more than Φ54.1mm.

⑧. If outdoor unit is a module parallel system, and if the length of the first branch pipe of outdoor unit to the farthest indoor unit is longer or equal to 90m, bigger pipes shall be used as the liquid-side main pipe and the high and low pressure gas main pipes from the first branch pipe of outdoor unit to the first branch pipe of the indoor unit. The max. diameter shall not be more than Φ54.1mm.

⑨. Selection of the branch piping of indoor unit

⑩. Branch pipes between indoor units shall be selected based on the total capacity of downstream indoor units in accordance with the following table.

R410A refrigerant system	Total Capacity of the Downstream Indoor Unit (X)	Model
Y-Type Branch Pipe	X≤56	FQ01Na/A
	56<X≤220	FQ02Na/A
	220<X≤300	FQ03Na/A
	300<X≤680	FQ04Na/A
	680<X≤960	FQ05Na/A
	960<X≤1350	FQ06Na/A
	1350<X	FQ07Na/A

Note:

①. When the total capacity of downstream indoor units is higher than the capacity of outdoor unit, the branch pipe shall be selected according to the capacity of outdoor unit.

②. For branch pipes with capacity more than FQ05Na/A(including FQ05Na/A), the ratio of the capacity values corresponding to the two branches after the jointing shall not exceed 3:1.

③. Example: To branch the pipe for which the total capacity code of downstream indoor unit is 960, the sum of the capacity code of downstream indoor units on any side after branching shall not be less than 240.

④. Only branch pipes FQ04Na/A, FQ03Na/A, FQ02Na/A and FQ01Na/A can be directly connected to indoor unit, and other branch pipes can not be directly connected to indoor unit. Branch pipe FQ03Na/A can not be used for connection of two or more indoor units with capacity more than 56 (including 56).

⑤. If no suitable pipe is available for branch piping, a transition pipe shall be added, or coupling of piping with the exterior of branch pipe shall be used for connection.

4) The diameter of the piping between branch joints (the branch pipe) of the indoor unit.

Total capacity code of indoor units at downstream side	High-pressure gas pipe		Low-pressure gas pipe		Lquid pipe	
	mm	inch	mm	inch	mm	inch
C≤56	Φ12.7	1/2	Φ12.7	1/2	Φ9.52	3/8
56<C≤142	Φ12.7	1/2	Φ15.9	5/8	Φ9.52	3/8
142<C≤220	Φ15.9	5/8	Φ19.1	3/4	Φ9.52	3/8
220<C≤300	Φ19.1	3/4	Φ22.2	7/8	Φ9.52	3/8
300<X≤500	Φ25.4	1	Φ28.6	9/8	Φ12.7	1/2
500<X≤680	Φ28.6	9/8	Φ28.6	9/8	Φ15.9	5/8
680<X≤960	Φ28.6	9/8	Φ34.9	11/8	Φ19.1	3/4
960<X≤1350	Φ34.9	11/8	Φ41.3	13/8	Φ19.1	3/4
1350<X≤1580	Φ41.3	13/8	Φ44.5	7/4	Φ22.2	7/8
1580<X	Φ41.3	13/8	Φ44.5	7/4	Φ25.4	1

5) The diameter of the piping from the branch joint (branch pipe) to ME unit

The diameter of copperpipe that between branch pipe ande ME box's should be equal to ME box's connection pipe.

Model	Capacity of Indoor Unit	High-pressure Gas Pipe (mm)	Low-pressure Gas Pipe (mm)	Lquid Pipe (mm)
CHS22	22,25,28	Φ9.52	Φ9.52	Φ6
CHS36	32,36,40,45,50	Φ9.52	Φ12.7	Φ6
CHS71	56,63,71,80	Φ12.7	Φ15.9	Φ9.52
CHS90	90,100,112,125	Φ12.7	Φ15.9	Φ9.52
CHS224	224,280	Φ16	Φ22	Φ9.52

The connection manner for GMV-Rh224W/Na-M and GMV-Rh280W/Na-M is brazing.

Note:

①. If the distance between indoor unit and nearest branch pipe is more than 10meter,then the cooper pipe should be one grade bigger.

②. Only branch pipes FQ04Na/A, FQ03Na/A, FQ02Na/A and FQ01Na/A can be directly connected to indoor unit, and other branch pipes can not be directly connected to indoor unit. Branch pipe FQ03Na/A can not be used for connection of two or more indoor units with capacity more than 56 (including 56).

③. For indoor unit with rated capacity less than 5.0kW, if the length from branch piping to indoor unit is longer than 10m, a bigger pipe shall be used as liquid pipe from the branch piping to indoor unit.

6) The diameter of the piping between mode exchanger and indoor unit

The refrigerant piping between mode exchanger and indoor unit shall have the same diameter as the refrigerant piping of indoor unit. The diameters of refrigerant piping for the indoor units of different capacities are as below:

Capacity code range of indoor unit (C)	Gas pipe	Liquid pipe
	mm(inch)	mm(inch)
C≤28	Φ9.52(3/8)	Φ6.35(1/4)
28<C≤50	Φ12.7(1/2)	Φ6.35(1/4)
50<C≤140	Φ15.9(5/8)	Φ9.52(3/8)

Note:

①. If the distance between indoor unit and nearest branch pipe is more than 10meter, then the cooper pipe should be one grade bigger.

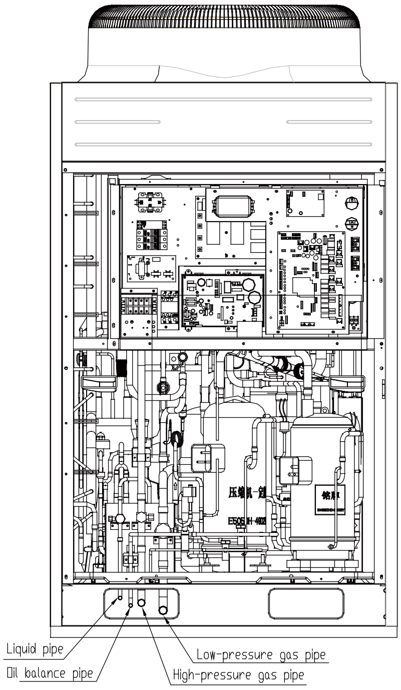
②. For indoor unit with rated capacity less than 5.0kW, if the length from branch piping to indoor unit is longer than 10m, a bigger pipe shall be used as liquid pipe from the branch piping to indoor unit.

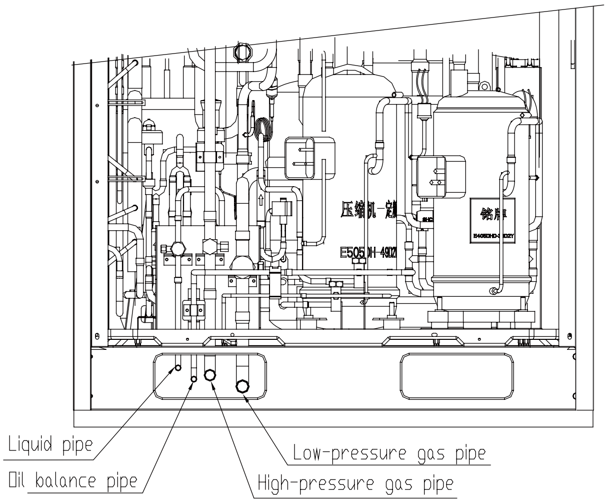
7) The oil balance pipe installation between basic models.

When the outdoor unit is combined with two basic modle or more, the oil balance pipe should be installed between basic models. It is connected with Φ12.7mm copper pipe,anΦ13.0mm oil balancing connection three-way valve is needed when there are more than two units combined together.

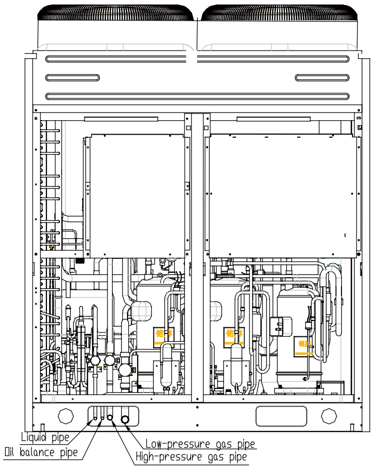
8) Outdoor unit piping sequence diagram

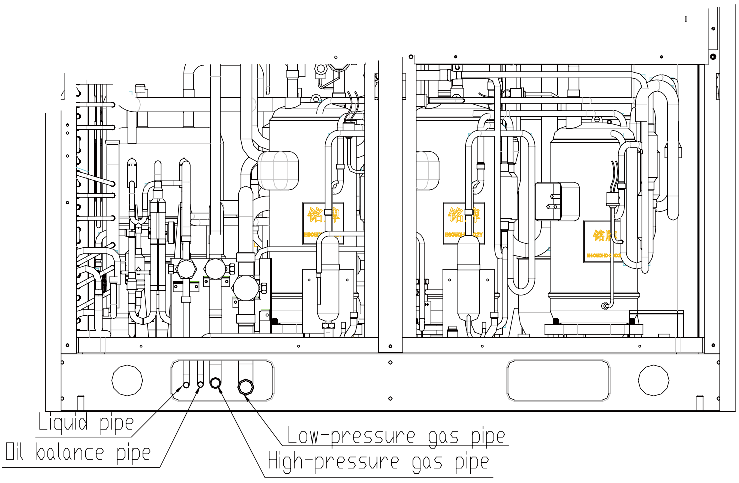
A. GMV-Pdhm224W/Na-M,GMV-Pdhm280W/Na-M


Liquid pipe
Oil balance pipe
Low-pressure gas pipe
High-pressure gas pipe


Liquid pipe
Oil balance pipe
Low-pressure gas pipe
High-pressure gas pipe

B.GMV-Pdhm335W/Na-M,GMV-Pdhm400W/Na-M,GMV-Pdhm450W/Na-M


Liquid pipe
Oil balance pipe
Low-pressure gas pipe
High-pressure gas pipe


Liquid pipe
Oil balance pipe
Low-pressure gas pipe
High-pressure gas pipe

6.4 Design requirements for oil trap

If the height different between the indoor unit and outdoor unit exceeds 6m, one oil trap shall be installed every 6m from lower to upper on the vertical section of high-pressure pipe and low-pressure pipe. The oil trap shall be fabricated into two U-type elbows or one return-type elbow. The height shall be 3~5 times the piping diameter.

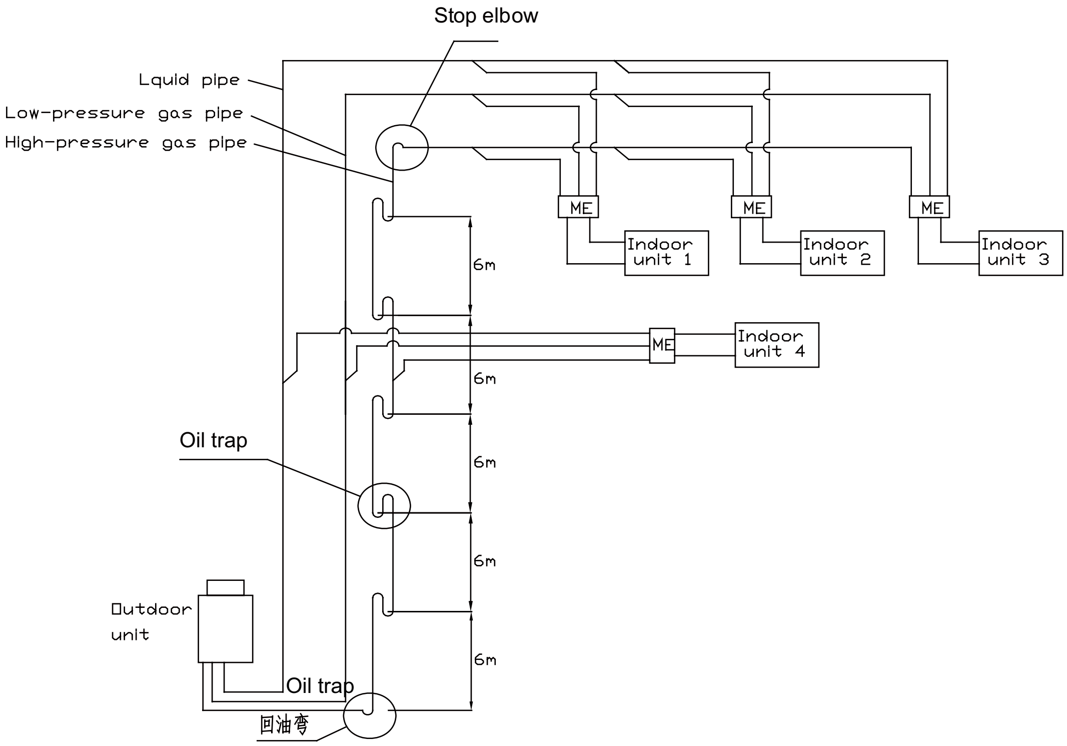
See below for details on installation and fabrication of oil trap.

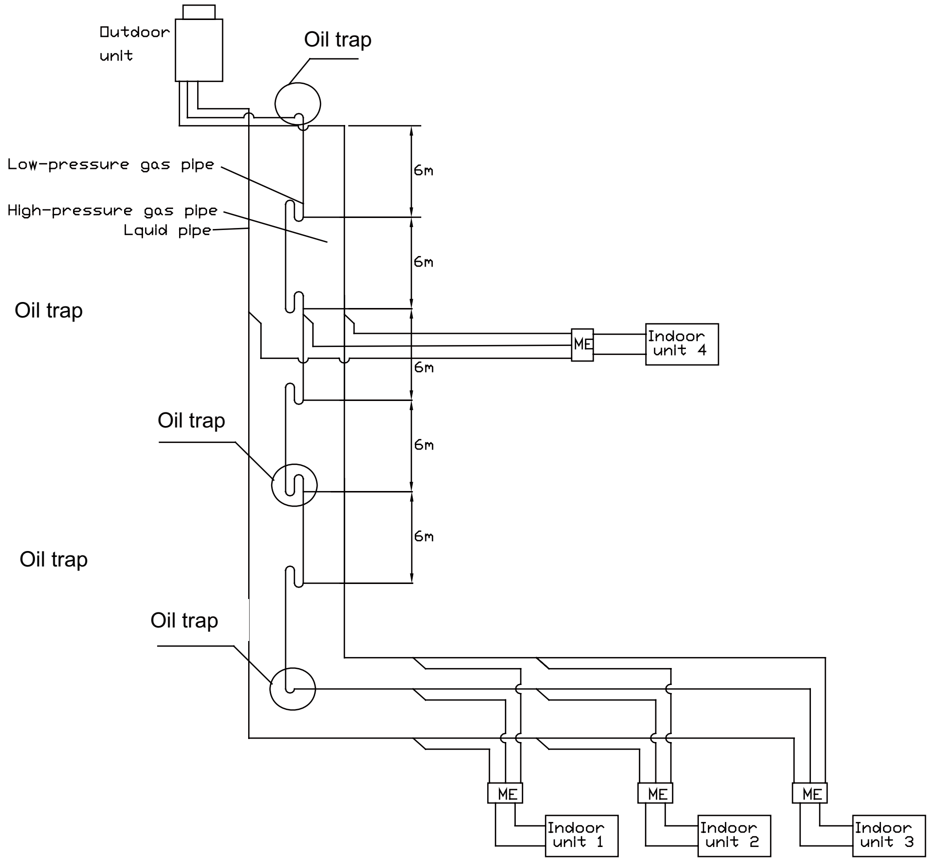
1) The oil trap may be fabricated into U-type or return-type.

2) If outdoor unit is below indoor unit, it is not needed to install oil trap on the vertical pipe of low pressure gas piping, but oil trap must be mounted at the lowest place and at the highest place of the vertical pipe of high pressure gas piping.

3) If the outdoor unit is below the indoor unit, it is not needed to install oil trap at the highest or lowest position. If the outdoor unit is above the indoor unit, oil trap and stop elbow must be installed at the lowest and highest position of the vertical pipe. See the schematics below:

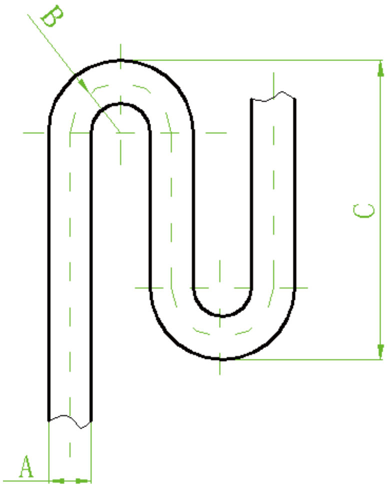
4) See the schematics below:


Stop elbow
Liquid pipe
Low-pressure gas pipe
High-pressure gas pipe
ME
ME
ME
Indoor unit 1
Indoor unit 2
Indoor unit 3
6m
ME
Indoor unit 4
6m
Oil trap
6m
6m
Outdoor unit
6m
Oil trap
回油弯


Outdoor unit
Oil trap
Low-pressure gas pipe
6m
High-pressure gas pipe
Liquid pipe
6m
Oil trap
ME
Indoor unit 4
6m
Oil trap
6m
6m
Oil trap
Oil trap
ME
ME
ME
Indoor unit 1
Indoor unit 2
Indoor unit 3

Outdoor unit higher than indoor unit

Fabrication dimension of oil trap is as shown below:



A		B(mm)	C(mm)
mm	inch		
Φ19.0	3/4	≥34	≤150
Φ22.2	7/8	≥31	≤150
Φ25.4	1/1	≥45	≤150
Φ28.6	9/8	≥45	≤150
Φ34.9	11/8	≥60	≤250
Φ38.1	12/8	≥60	≤350
Φ41.3	13/8	≥80	≤450
Φ44.45	7/4	≥90	≤500
Φ54.1	17/8	≥90	≤500

MAINTENANCE

MAINTENANCE

1 TROUBLESHOOTING

Error Code of the System

1.1 TROUBLE TABLES

1.1.1 Trouble Display of Indoor Unit

1.1.1.1 Trouble display of wire remote controller

Display code	Trouble Name	Source of trouble signal	Description
E1	High-pressure protection	High pressure sensor High-pressure Switch	Exhaust pressure is too high
E2	Antifreeze protection	Indoor tube sensor	Indoor evaporator is frozen
E3	Low-pressure protection	Low pressure sensor	Absorption pressure is too low
E4	Exhaust Overtemperature Protection	Exhaust temperature sensor	The exhaust temperature of compressor is too high.
E5	Overcurrent Protector	Overcurrent test boardInverter drive	The compressor current is too high, or the drive is failed.
E6	Communication error	Communication wire Address dial code	The communication line is broken or not connected correctly; or the address code of indoor unit is incorrect.
E7	Mode conflict	User operation Indoor unit mode	The user mode is in conflict against the unit working mode.
E9	Water-full protection	Pump water level detection switch	The water level in water tray exceeds the limit.
EH	Auxiliary heater mal-start protection	Auxiliary heater detection switch	The contactor of auxiliary heater is stuck.
F0	Indoor environment temperature sensor error	Indoor room sensor	Temperature senor is abnormal or not connected.
F1	Indoor coil-inlet temperature sensor	Indoor room sensor	Temperature senor is abnormal or not connected.
F2	Indoor tube-middle sensor error	Indoor room sensor	Temperature senor is abnormal or not connected.
F3	Indoor tube-exit sensor error	Indoor room sensor	Temperature senor is abnormal or not connected.
F4	Outdoor environment temperature sensor error	Outdoor environment sensor	Temperature senor is abnormal or not connected
F5	Outdoor Tube-inlet Sensor	Outdoor Tube-inlet Sensor	Temperature senor is abnormal or not connected
F6	Outdoor Tube-middle Sensor	Outdoor Tube-middle Sensor	Temperature senor is abnormal or not connected
F7	Outdoor tube-exit sensor error	Outdoor Tube-exit Sensor	Temperature senor is abnormal or not connected
F8	Fixed-frequency exhaust temperature sensor error	Fixed-frequency exhaust temperature sensor	Temperature senor is abnormal or not connected
F9	D.C inverter exhaust temperature sensor	D.C inverter exhaust temperature sensor	Temperature senor is abnormal or not connected
FA	Fixed-frequency oil temperature sensor error	Fixed-frequency oil temperature sensor	Temperature senor is abnormal or not connected
Fb	D.C inverter oil temperature sensor error	D.C inverter oil temperature sensor	Temperature senor is abnormal or not connected.
FC	High-voltage sensor error	HV sensor	HV sensor is abnormal or not connected.
Fd	Low-voltage sensor error	HV sensor	HV sensor is abnormal or not connected.

1.1.1.2 Trouble display of mainboard LED of duct type indoor unit and Concealed Duck High ESP Type indoor uint

Error	Error Code	Error	Error Code
High-pressure protection	E1	Indoor tube-exit sensor error	F3
Antifreeze protection	E2	Outdoor environment temperature sensor error	F4
Low-pressure protection	E3	Indoor tube-inlet sensor error	F5
Exhaust Over temperature Protection	E4	Indoor tube-middle sensor error	F6
Over current Protector	E5	Outdoor tube-exit sensor error	F7
Communication error	E6	Fixed-frequency exhaust temperature sensor error	F8
Mode conflict	E7	D.C inverter exhaust temperature sensor error	F9
Water-full protection	E9	Fixed-frequency oil temperature sensor error	FA
Indoor environment temperature sensor error	F0	D.C inverter oil temperature sensor error	Fb
Indoor tube-inlet sensor error	F1	High-voltage sensor error	FC
Indoor tube-middle sensor error	F2	Low-voltage sensor error	Fd
Auxiliary heater mal-start protection	EH		

1.1.1.3 Trouble display of mainboard LED of cassette type indoor unit

Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◑
Tube-middle sensor error	○	◑	◑
Tube-exit sensor error	○	◑	○
Indoor environment temperature sensor error	○	○	◑
Defrost	○	◑	●
Antifreeze protection	●	●	◑
Water-full protection	●	◑	◑
Mode conflict	●	◑	○
Communication error	◑	◑	◑
Outdoor unit failure	◑	●	●
Auxiliary heating protection	◑	○	○

Legend: bright ○; dark ●;blink ◑

1.1.1.4 Trouble display of mainboard LED of LengJingwang

Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◑
Tube-middle sensor error	○	◑	◑
Tube-exit sensor error	○	◑	○
Indoor environment temperature sensor error	○	○	◑
Defrost	○	◑	●
Antifreeze protection	●	●	◑
Mode conflict	●	◑	○
Communication error	◑	◑	◑
Outdoor unit failure	◑	●	●
Auxiliary heating protection	◑	○	○

Legend: bright ○; dark ●;blink ◑

1.1.1.5 Trouble display of mainboard LED of TianLi

Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◑
Tube-middle sensor error	○	◑	◑
Tube-exit sensor error	○	◑	○
Indoor environment temperature sensor error	○	○	◑
Defrost	○	◑	●
Antifreeze protection	●	●	◑
Mode conflict	●	◑	○
Communication error	◑	◑	◑
Outdoor unit failure	◑	●	●
Auxiliary heating protection	◑	○	○

Legend: bright ○; dark ●;blink ◑

1.1.1.6 Trouble display of mainboard LED of FengYun and FengXia

Trouble name	Operation LED	Timing LED
Tube-inlet sensor error	◑	◑ [1]
Tube-middle sensor error		
Tube-exit sensor error		
Indoor environment temperature sensor error		
Defrost	○	◑
Antifreeze protection	●	◑
Mode conflict	◑	○
Communication error	◑	◑ [2]
Outdoor unit failure	◑	●
Auxiliary heating protection	Fast blinking ◑	Slow blinking ◑

[1] Bright and dark intermittently
[2] Bright and dark simultaneously
Legend: bright ○; dark ●;blink ◑

1.1.1.7 Trouble display of mainboard LED of XinFengyun and XinFengxia

Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◑
Tube-middle sensor error	○	◑	◑
Tube-exit sensor error	○	◑	○
Indoor environment temperature sensor error	○	○	◑
Defrost	○	◑	●
Antifreeze protection	●	●	◑
Mode conflict	●	◑	○
Communication error	◑	◑	◑
Outdoor unit failure	◑	●	●
Auxiliary heating protection	◑	○	○

Legend: bright ○; dark ●;blink ◑

1.1.1.8 Trouble display of mainboard LED of floor ceiling type

Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◑
Tube-middle sensor error	○	◑	◑
Tube-exit sensor error	○	◑	○
Indoor environment temperature sensor error	○	○	◑
Defrost	○	◑	●
Antifreeze protection	●	●	◑
Mode conflict	●	◑	○
Communication error	◑	◑	◑
Outdoor unit failure	◑	●	●
Auxiliary heating protection	◑	○	○

Legend: bright ○; dark ●;blink ◑

1.1.2 Trouble and State Display of Mainboard LED of Outdoor Unit

Difinition:

- LED6: Power lamp (red), bright when energized.
- LED5: Operation lamp (green), bright if no error, which indicated that the unit is started; “Dark” indicates the unit is stopped.
- LED4, LED3, LED2 and LED1: Error / state indicator (yellow)

1.1.2.1 Trouble of elements

Trouble name	Display of LED						Display of wired remote controller	LED display of patching board
	LED6	LED5	LED4	LED3	LED2	LED1		
High pressure sensor error	○	◑	○	◑	◑	◑	Fc	Fc
Low pressure sensor error	○	◑	○	○	◑	◑	Fd	Fd
Outdoor environment temperature sensor error	○	◑	◑	●	●	●	F4	F4
coil-inlet sensor error	○	◑	◑	●	●	◑	F5	F5
coil-outlet sensor error	○	◑	◑	●	◑	◑	F7	F7
coil- inlet temp. sensor error	○	◑	◑	●	○	●	F5	F5
coil-outlet sensor error	○	◑	◑	●	●	○	F7	F7
D.C inverter compressor exhaust temperature sensor error	○	◑	◑	◑	●	◑	F9	F9
Fixed-frequency compressor 1 exhaust temperature sensor error	○	◑	◑	◑	●	●	F8	F8
Fixed-frequency compressor 2 exhaust temperature sensor error	○	◑	◑	◑	●	○	F8	b8
D.C inverter compressor top sensor error	○	◑	◑	◑	◑	◑	Fb	Fb
Fixed-frequency compressor 1 top sensor error	○	◑	◑	◑	◑	●	FA	FA
Fixed-frequency compressor 2 top sensor error	○	◑	◑	●	◑	○	FA	bA

Legend: bright ○; dark ●;blink ◑

1.1.2.2 System trouble

Trouble name	Display of LED						Display of wired remote controller	LED display of patching board
	LED6	LED5	LED4	LED3	LED2	LED1		
High-pressure protection	○	◑	●	●	●	◑	E1	E1
Low-pressure protection	○	◑	●	●	◑	●	E3	E3
No-refrigerant protection	○	◑	◑	◑	○	●	E3	FE
low pressure ratio protection	○	◑	○	○	●	●	E3	E3
High pressure ratio protection	○	◑	○	○	●	◑	E3	E3
Exhaust protection	○	◑	●	●	◑	◑	E4	E4
overabundance protection	○	◑	○	○	●	○	E4	E4
Overcurrent Protection	○	◑	●	◑	●	●	E5	E5

Legend: bright ○; dark ●; blink ◑

1.1.2.3 Controlling trouble

Trouble name	Display of LED						Display of wired remote controller	LED display of patching board
	LED6	LED5	LED4	LED3	LED2	LED1		
Capacity dial-up of outdoor unit is wrong	○	◑	●	◑	●	○	No display	C5
Drive error of outdoor fan	○	◑	○	●	○	○	E5	E5
Drive current error of outdoor fan	○	◑	○	●	○	◑	E5	E5
Drive voltage protection of outdoor fan	○	◑	○	●	○	●	E5	E5
IPM overheating protection of outdoor fan	○	◑	○	●	●	○	E5	E5
Motor overheating protection of outdoor fan	○	◑	○	●	●	●	E5	E5
Overvoltage protection(DC input voltage too high)	○	◑	○	○	○	○	E5	PH
IPM temperature too high	○	◑	○	○	○	◑	E5	P8
Current sensor fault /current detection circuit fault	○	◑	○	○	◑	○	E5	Pc
IPM temp. sensor fault	○	◑	○	◑	○	○	E5	P7
Compressor overcurrent protection	○	◑	○	◑	○	◑	E5	P5
Low-voltage protection(DC input voltage too low)	○	◑	○	◑	◑	○	E5	PL
Failed to start	○	◑	●	○	○	○	E5	Lc
Compressor clogged	○	◑	●	○	○	◑	E5	LE
IPM module reset	○	◑	●	○	●	○	E5	P0
Missing phase/ tripping	○	◑	●	○	●	◑	E5	Ld
Fault from variable frequency drive to main control communication	○	○	●	●	●	◑	E5	P6
IPM abnormality/IPM protection	○	◑	◑	○	○	○	E5	H5
D.C inverter compressor Overspeed protection	○	◑	◑	○	○	●	E5	LF
Temperature drift protection	○	◑	◑	○	●	○	E5	PE
AC contactor protection	○	◑	◑	○	●	●	E5	P9
Overcurrent or drive system abnormality / compressor overload protection	○	◑	●	◑	●	●	E5	E5
AC overcurrent protection (input side)	○	◑	○	◑	○	●	E5	PA
Driver board environment temperature sensor error	○	◑	○	◑	●	○	E5	PF

Legend: bright ○; dark ●;blink ◑

1.1.2.4 Communication trouble

Trouble name	Display of LED						Display of wired remote controller	LED display of patching board
	LED6	LED5	LED4	LED3	LED2	LED1		
Communicaiton error among modules	○	◑	●	◑	●	◑	E6 displayed on indoor unit under adaptor board failing to communicate with the master board	——
Qty codes among modules are not the same	○	◑	●	◑	○	○	E6 displayed on indoor unit under adaptor board failing to communicate with the master board	——
Communication error between master board of outdoor unit and adaptor board	○	◑	●	◑	◑	●	E6	E6
Communication error between outdoor board and fan speed regulation board	○	◑	●	◑	◑	○	E5	E5

Legend: bright ○; dark ●;blink ◑

1.1.2.5 State display

Trouble name	Display of LED						Display of wired remote controller	LED display of patching board
	LED6	LED5	LED4	LED3	LED2	LED1		
Other modules are at fault	○	◑	●	◑	○	●	No display	——
Forcible cooling	●	◑	●	●	●	●	TEST	——
Forcible heating	◑	●	●	●	●	●	TEST	——
Forcible stop	◑	◑	●	●	●	●	TEST	——
Defrost	○	◑	●	◑	◑	◑	MELT	——
Oil return	○	◑	◑	◑	○	◑	When heating, MELT	——
		◑	◑	◑			No display when cooling	——
Oil equilibrium	○	◑	◑	◑	◑	○	No display	——
Vacuum mode	●	●	◑	◑	◑	◑	No display	——
Oil discharge running	○	◑	◑	○	●	◑	No display	——
Online test mode	○	○	●	●	○	●	No display	——
When current module is the master module	○	LED is not judged	●	●	●	○	No display	——
Refrigerants reclaim mode aftersales	○	○	●	○	○	●	No display	——

Legend: bright ○; dark ●;blink ◑

1.1.2.6 Number of indoor units display

Access method: Short press SW10 (KEY1) twice within 2 seconds to enter into “Indoor Unit Number Detection” mode;

Operation state: The LED6-LED1 display the binary value of the number of indoor units, maximum up to 63 sets (bright bright bright bright bright bright).

When the number of indoor unit is “0”: The LED6-LED1 display the adaptor board communication error code: (bright, blink, dark, blink, blink, dark)

Exit method: Short press SW10 (KEY1) twice within 2 seconds to exit to normal mode;

Trouble name	Display of LED						Indicate the number of indoor units in current system
	LED6	LED5	LED4	LED3	LED2	LED1	
Detection of the number of indoor units	◑	◑	◑	◑	◑	◑	Binary value of number
	●	●	●	●	●	○	1 set
	●	●	●	●	○	●	2 set
	●	●	●	●	○	○	3 set
	…	…	…	…	…	…	…
	○	○	○	○	○	○	Equal to or more than 63 sets
	○	◑	●	◑	◑	●	0set

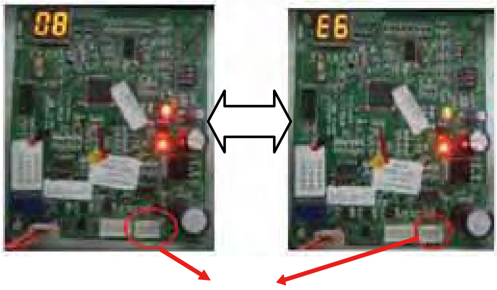
Legend: bright ○; dark ●;blink ◑

1.1.3 Trouble Display of Outdoor Unit Transition Board

Trouble code	Trouble name	Trouble code	Trouble name
C5	Capacity dial-up of outdoor unit is wrong	F4	Outdoor environment temperature sensor error
E1	High-pressure protection	F5	System 1 coil-inlet sensor error
E3	Low-pressure protection	F6	System 1 coil-middle sensor error
E4	Exhaust protection / High oil temperature protection	F7	System 1 coil-exit sensor error
E5	Overcurrent / fan drive part fault	F9	VRF/D.C inverter exhaust temperature sensor error
E6	Adaptor communication fault	F8	Fixed-frequency compressor 1 exhaust temperature sensor error
Fc	High-voltage sensor error	Fb	VRF/D.C inverter oil temperature / top sensor error
Fd	Low-voltage sensor error	FA	Fixed-frequency compressor 1 oil temperature / top sensor error
PL	Undervoltage protection / DC input voltage too low	Pc	Current sensor fault /current detection circuit fault
PH	Overvoltage protection/DC input voltage too high	H7	Motor out of synchronization
PA	AC overcurrent protection (input side)	LE	Compressor clogged
H5	IPM abnormality/IPM module protection	P6	Fault from variable frequency drive to main control communication
Hc	PFC abnormality	P8	Air cooling fin/IPM module/PFC module temperature too high
Lc	Failed to start	P7	Air cooling fin/IPM module/PFC module temp. sensor fault
Ld	Open phase, tripping	PF	Driver board environment temperature sensor error
P0	Drive module reset / IPM module reset	P9	AC contactor protection
P5	Compressor overcurrent / compressor current protection	PE	Temperature drift protection
LF	Overspeed protection	Pd	Sensor connection protection

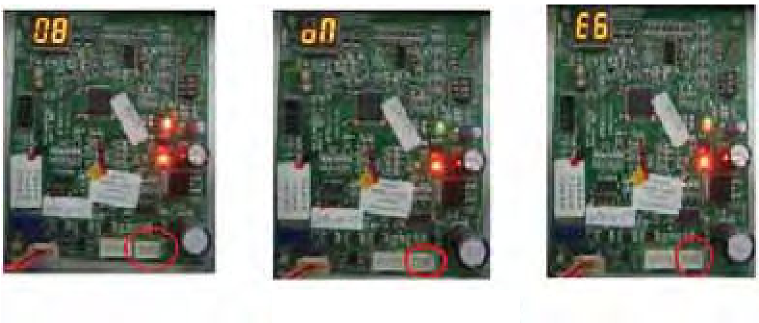
NOTEl:

When the patching board is not communicated with indoor unit, if the complete unit stops, the address code of patch board and “E6” will be displayed alternately (as shown in Fig 1), and that is normal condition.



The patching board is not communicated with indoor unit(Fig 1)

If the complete unit is running, the address code of patch board and “E6” will be displayed alternately (as shown in Fig 2), and that is normal condition.



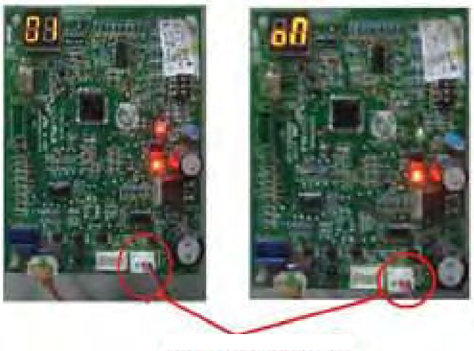
The patching board is communicated with the indoor

If the sytem stops for error, the address code of patch board, error code and E6 will be displayed alternately.

When patch board is communicating wth indoor unit, if the complete unit stops, the address code of patch board will be displaye on it(as shown in Fig 3).

The patching board is communicated with the indoor

If the unit is running, the patch board will display address code of patch board and “ON” alternately(as shown in Fig 4).



The patching board is communicated with the indoor

If the system stops for error, the address code of patch board and error code will be displayed alternately.

1.1.4 Trouble Display of Driver Board LED

Trouble name	LED1	LED2	LED3	Times of continuously flash about LED1(Red)	Remark
	Red	Yellow	Green		
Normal state of fan board	◑	●	●	The DC fan board blinks once every 1s	
Communication error between outdoor board and fan speed regulation board	●	◑	◑	The DC fan board blinks 5 times every 250mS.	
Outdoor fan drive error / module protection	◑	●	◑	The DC fan board blinks 2 times every 250mS.	
Drive current error of outdoor fan	◑	◑	◑	The DC fan board blinks 3 times every 250mS.	
Drive voltage protection of outdoor fan	◑	◑	●	The DC fan board blinks 4 times every 250mS.	
Module overheating protection of outdoor fan	○	◑	○	The DC fan board blinks 6 times every 250mS.	
Motor overheating protection of outdoor fan	◑	○	●	DC fan board has no error	
Compressor drive board in normal state	◑	●	●		
Undervoltage protection / DC input voltage too low	◑	◑	●		
Overvoltage protection/DC input voltage too high	◑	◑	●		
AC overcurrent protection (input side)	-	-	-		
IPM abnormality/IPM module protection	◑	●	◑		
PFC abnormality	-	-	-		
Failed to start	○	◑	●		
Open phase, tripping	○	●	○		
Drive module reset / IPM module reset	-	-	-		
Compressor overcurrent / compressor current protection	◑	◑	◑		
Overspeed protection	◑	○	◑		
Current sensor fault /current detection circuit fault	◑	◑	○		
Motor out of synchronization	◑	○	○		
Compressor clogged	-	-	-		
Fault from variable frequency drive to main control communication	●	◑	◑		
Air cooling fin/IPM module/PFC module temperature too high	○	◑	○		
Air cooling fin/IPM module/PFC module temp. sensor fault	●	◑	○		
Driver board environment temperature sensor error	◑	●	○		
AC contactor protection	●	○	◑		
Temperature drift protection	○	◑	◑		
Sensor connection protection	○	○	◑		

Legend: bright ○; dark ●;blink ◑

Note:

The code E5 represents different errors. Therefore, then the wired controller of indoor unit or the lamp displays E5 protection, please do not immediately cut off the power of complete unit, but checking the records of mainboard, adaptor board and drive board on outdoor side and observing the detailed display of the error lamp to identify the specific error protection.

Troubleshooting of Refrigerants System

1. Discharge temp protection (E4)

System discharge temp(E4) protection consists of suoerhigh discharge temp protection of compressor and overabundance protection. When E4 code is displayed, figure out which protection it is.

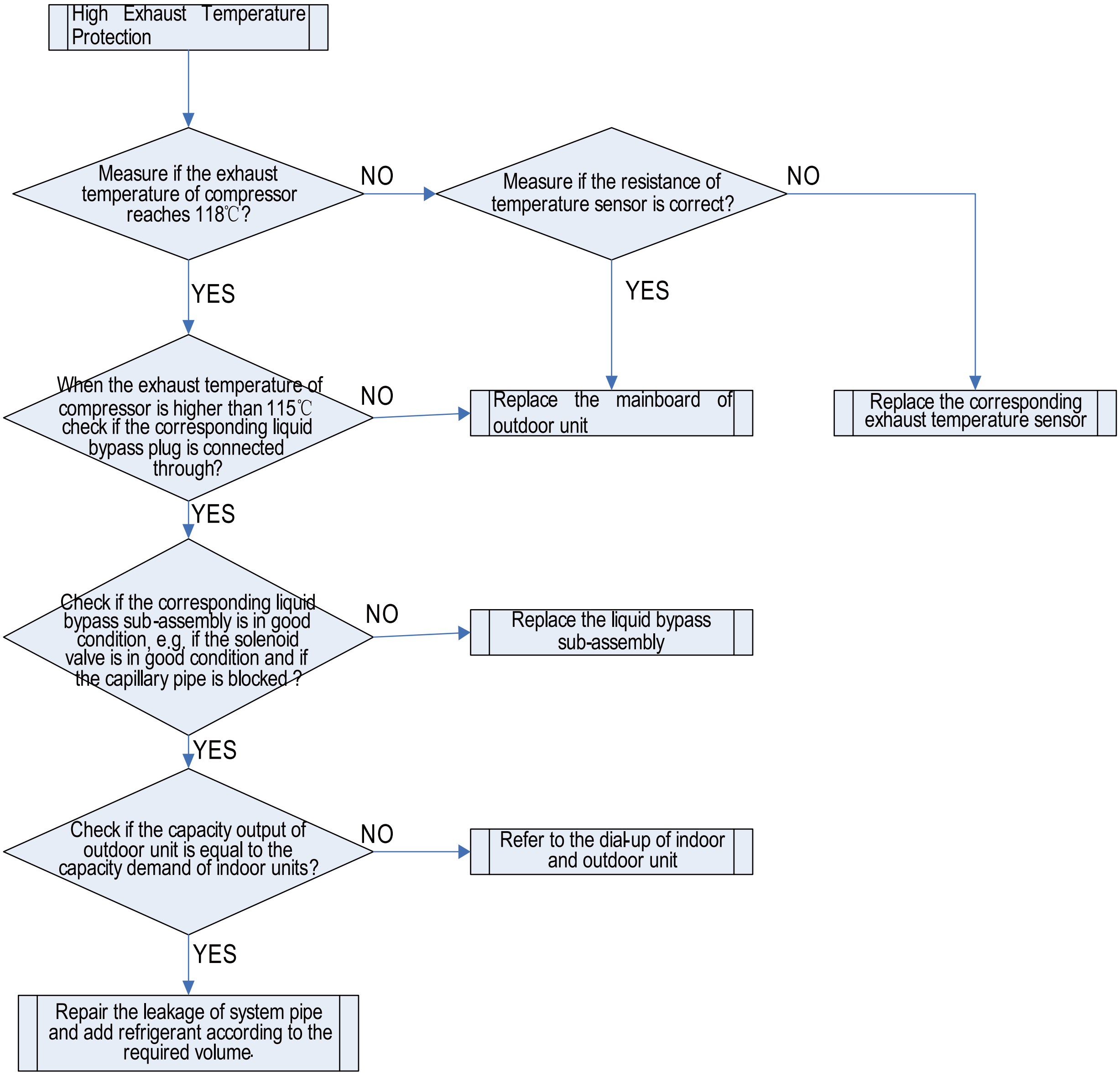
E4 protection→Status of LED:LED1 blinks; LED2 blinks; LED3 goes out; LED 4 goes out.

LED5 blinks; LED6 is on;→Superhigh discharge temp protection of the system.

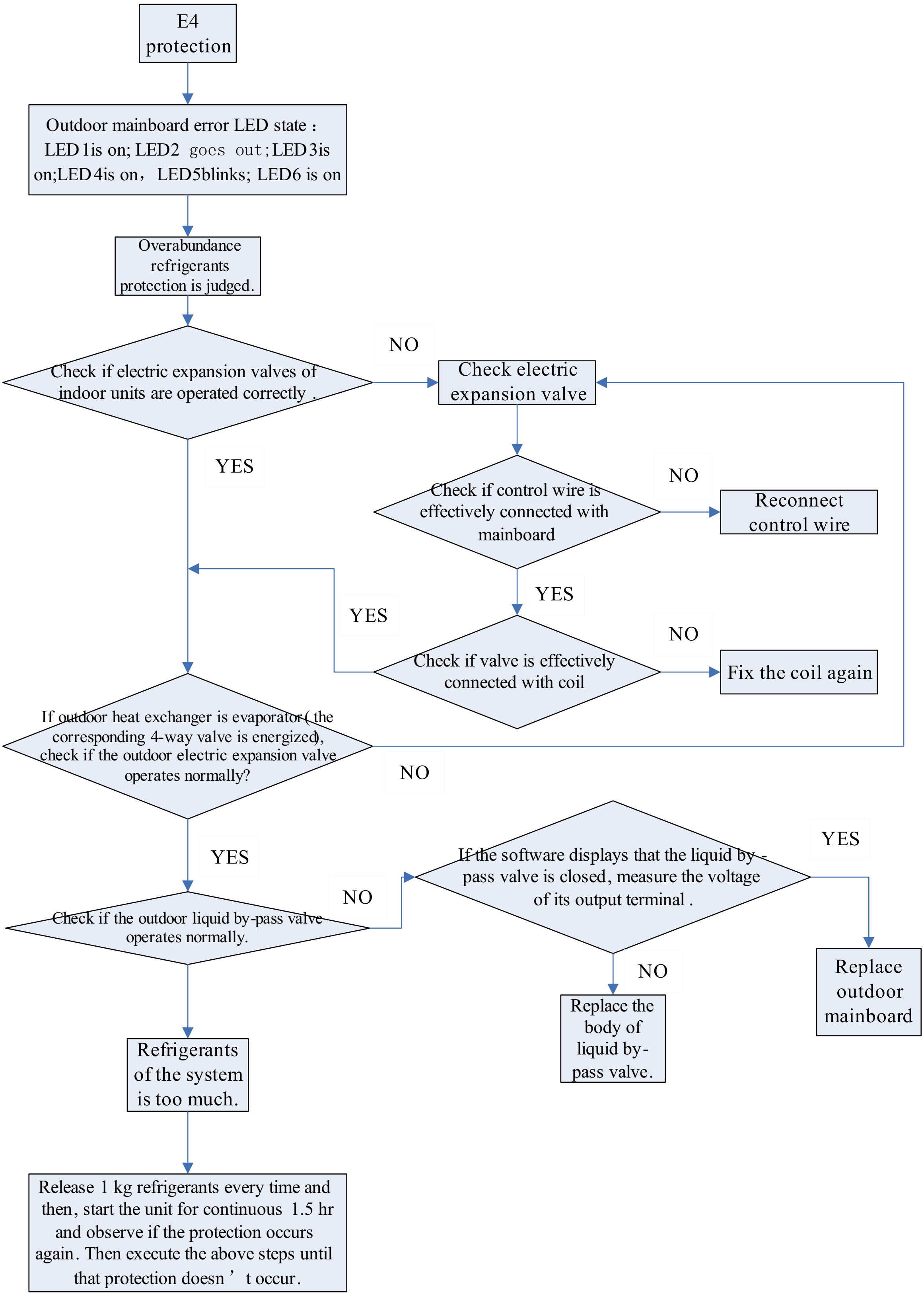
E4 protection→ Status of LED:LED1 is on ; LED2 goes out; LED3 is on; LED4 is on.

LED5 blinks, LED6 is on→overabundance protectionof the sytem.

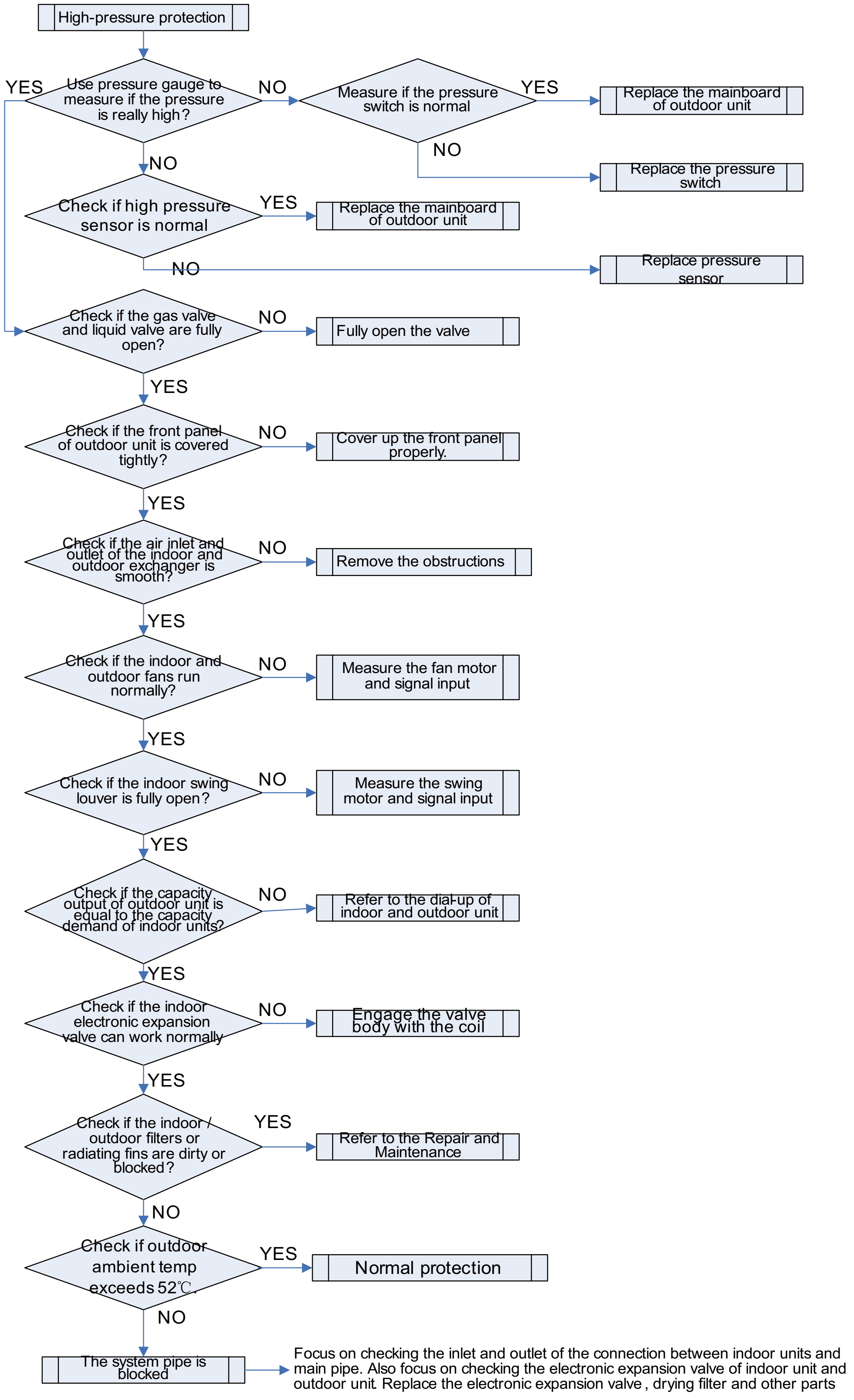
1.2 When the system judge that it is superhigh discharge temp protection, check it as follows:


High Exhaust Temperature Protection
Measure if the exhaust temperature of compressor reaches 118℃?
NO
Measure if the resistance of temperature sensor is correct?
NO
YES
YES
Replace the mainboard of outdoor unit
Replace the corresponding exhaust temperature sensor
When the exhaust temperature of compressor is higher than 115℃ check if the corresponding liquid bypass plug is connected through?
NO
YES
Check if the corresponding liquid bypass sub-assembly is in good condition, e.g. if the solenoid valve is in good condition and if the capillary pipe is blocked ?
NO
Replace the liquid bypass sub-assembly
YES
Check if the capacity output of outdoor unit is equal to the capacity demand of indoor units?
NO
Refer to the dial-up of indoor and outdoor unit
YES
Repair the leakage of system pipe and add refrigerant according to the required volume.

1.3 When the system judge that it is overabundance protection, check it as follows:


E4 protection
Outdoor mainboard error LED state：LED1is on; LED2 goes out;LED3is on;LED4is on，LED5blinks; LED6 is on
Overabundance refrigerants protection is judged.
Check if electric expansion valves of indoor units are operated correctly .
NO
Check electric expansion valve
YES
Check if control wire is effectively connected with mainboard
NO
Reconnect control wire
YES
YES
Check if valve is effectively connected with coil
NO
Fix the coil again
If outdoor heat exchanger is evaporator(the corresponding 4-way valve is energized), check if the outdoor electric expansion valve operates normally?
NO
YES
Check if the outdoor liquid by-pass valve operates normally.
NO
If the software displays that the liquid by-pass valve is closed, measure the voltage of its output terminal .
YES
Replace outdoor mainboard
NO
Replace the body of liquid by-pass valve.
Refrigerants of the system is too much.
Release 1 kg refrigerants every time and then, start the unit for continuous 1.5 hr and observe if the protection occurs again. Then execute the above steps until that protection doesn’t occur.

1.4 System high pressure protection(E1)


High-pressure protection
Use pressure gauge to measure if the pressure is really high?
YES
NO
Measure if the pressure switch is normal
YES
Replace the mainboard of outdoor unit
NO
Replace the pressure switch
NO
Check if high pressure sensor is normal
YES
Replace the mainboard of outdoor unit
NO
Replace pressure sensor
Check if the gas valve and liquid valve are fully open?
NO
Fully open the valve
YES
Check if the front panel of outdoor unit is covered tightly?
NO
Cover up the front panel properly.
YES
Check if the air inlet and outlet of the indoor and outdoor exchanger is smooth?
NO
Remove the obstructions
YES
Check if the indoor and outdoor fans run normally?
NO
Measure the fan motor and signal input
YES
Check if the indoor swing louver is fully open?
NO
Measure the swing motor and signal input
YES
Check if the capacity output of outdoor unit is equal to the capacity demand of indoor units?
NO
Refer to the dial-up of indoor and outdoor unit
YES
Check if the indoor electronic expansion valve can work normally
NO
Engage the valve body with the coil
YES
Check if the indoor / outdoor filters or radiating fins are dirty or blocked?
YES
Refer to the Repair and Maintenance
NO
Check if outdoor ambient temp exceeds 52℃.
YES
Normal protection
NO
The system pipe is blocked

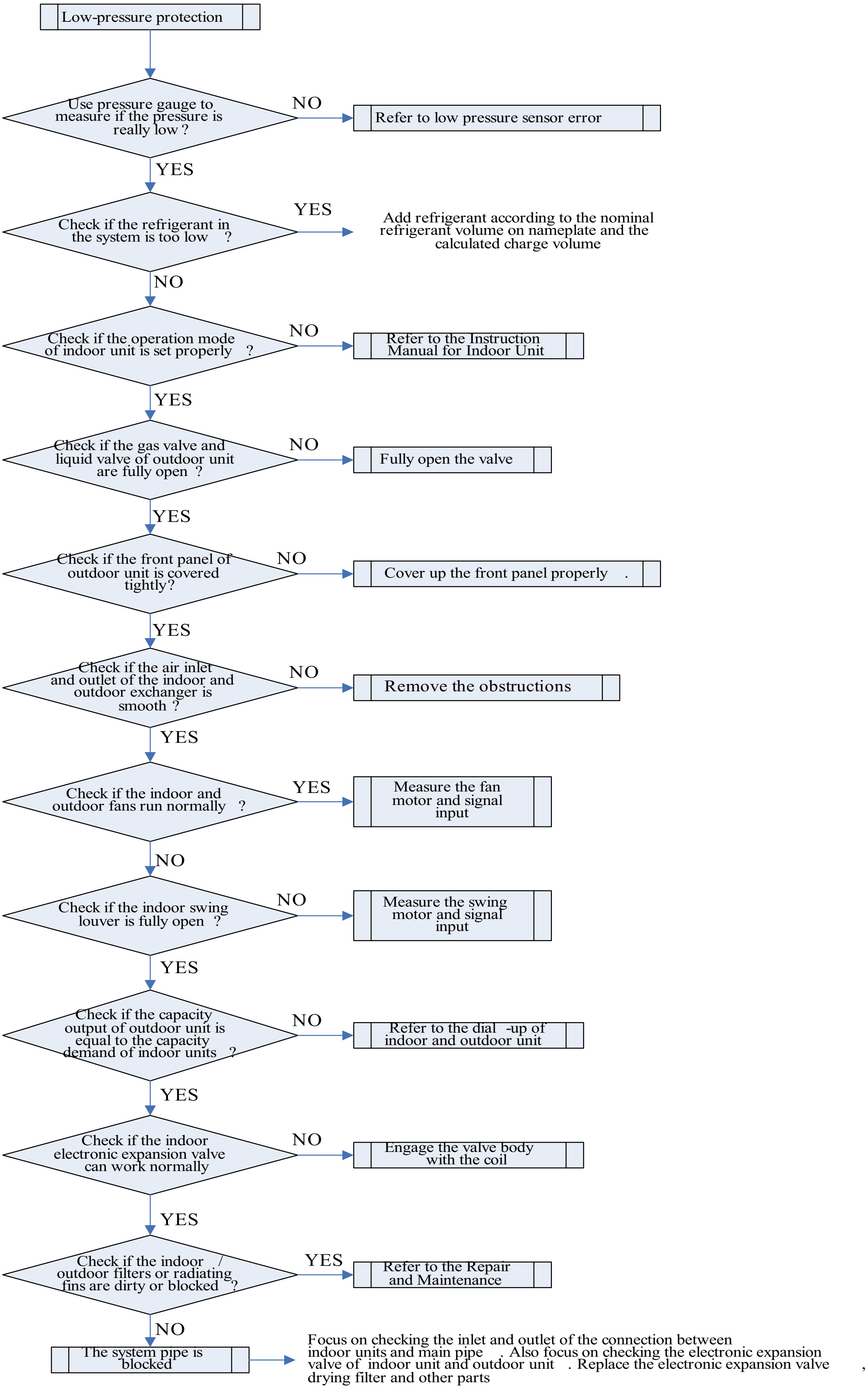
Focus on checking the inlet and outlet of the connection between indoor units and main pipe. Also focus on checking the electronic expansion valve of indoor unit and outdoor unit. Replace the electronic expansion valve , drying filter and other parts

1.5 System low pressure protection(E3)

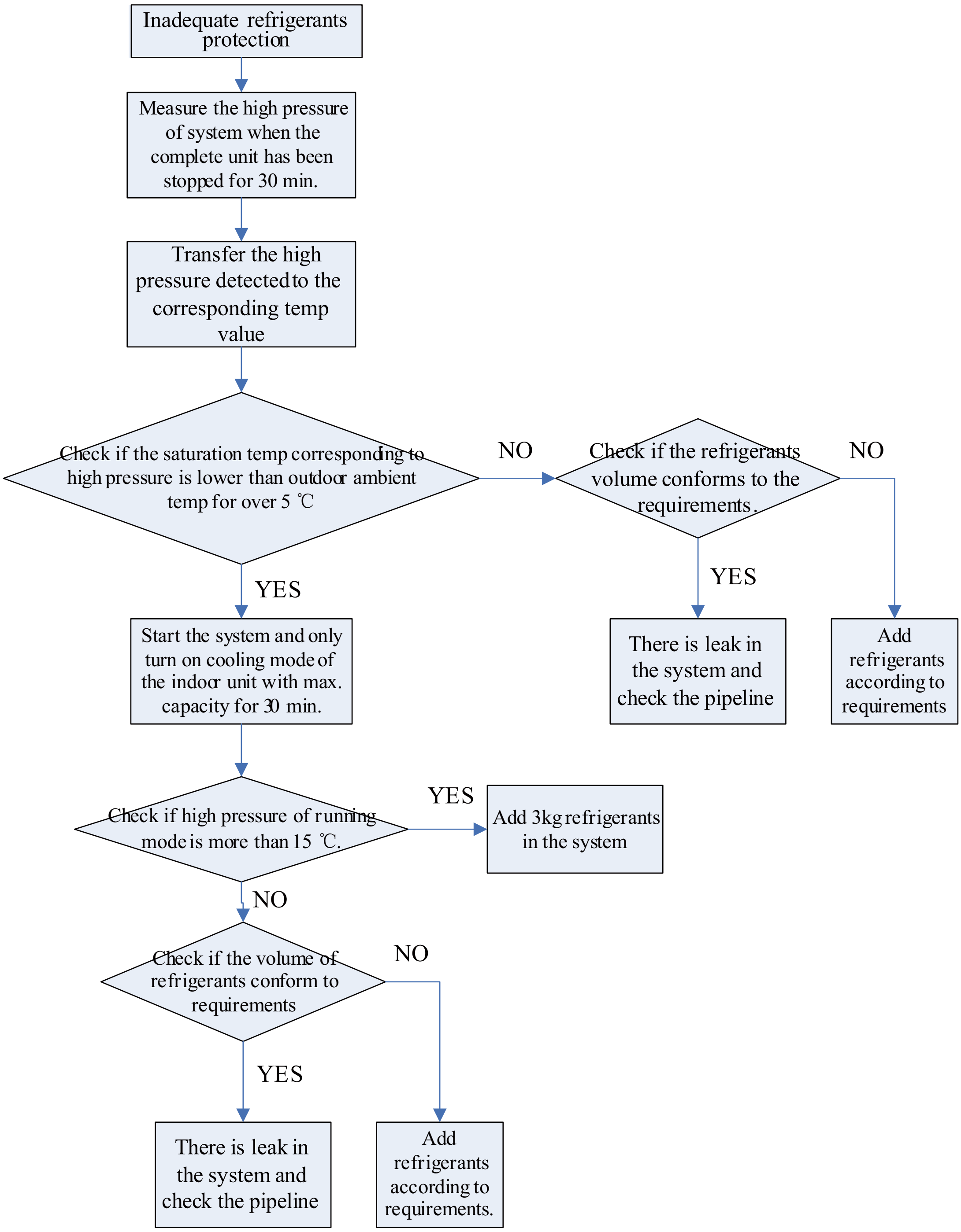
System discharge temp (E3) protection consists of system low pressuer protection, inadequated refrigerants protection, hgh pressure ratio of system protection and low pressure ratio protection. Method of Confirmation is as follows:

E3 protection→Status of LED:LED1goes out; LED2 blinks,LED3 goes out; LED4 goes out.
LED5 blinks,LED6 is on→System low pressure protection.
E3 protection→LED status:LED1goes out; LED2 is on; LED3 blinks,LED4 blinks.
LED5 blinks ,LED6 is on→inadequate refrigerant protection of the system.
E3 protection→LED status:LED1blinks; LED2 goes out; LED3 is onLED4 is on.
LED5 blinks, LED6 is on→System high pressure ratio protecion
E3 protection→LED status:LED1goes out; LED2 goes out;LED3 is on; LED4 is on.
LED5 blinks, LED6 is on→System high pressure ratio protection

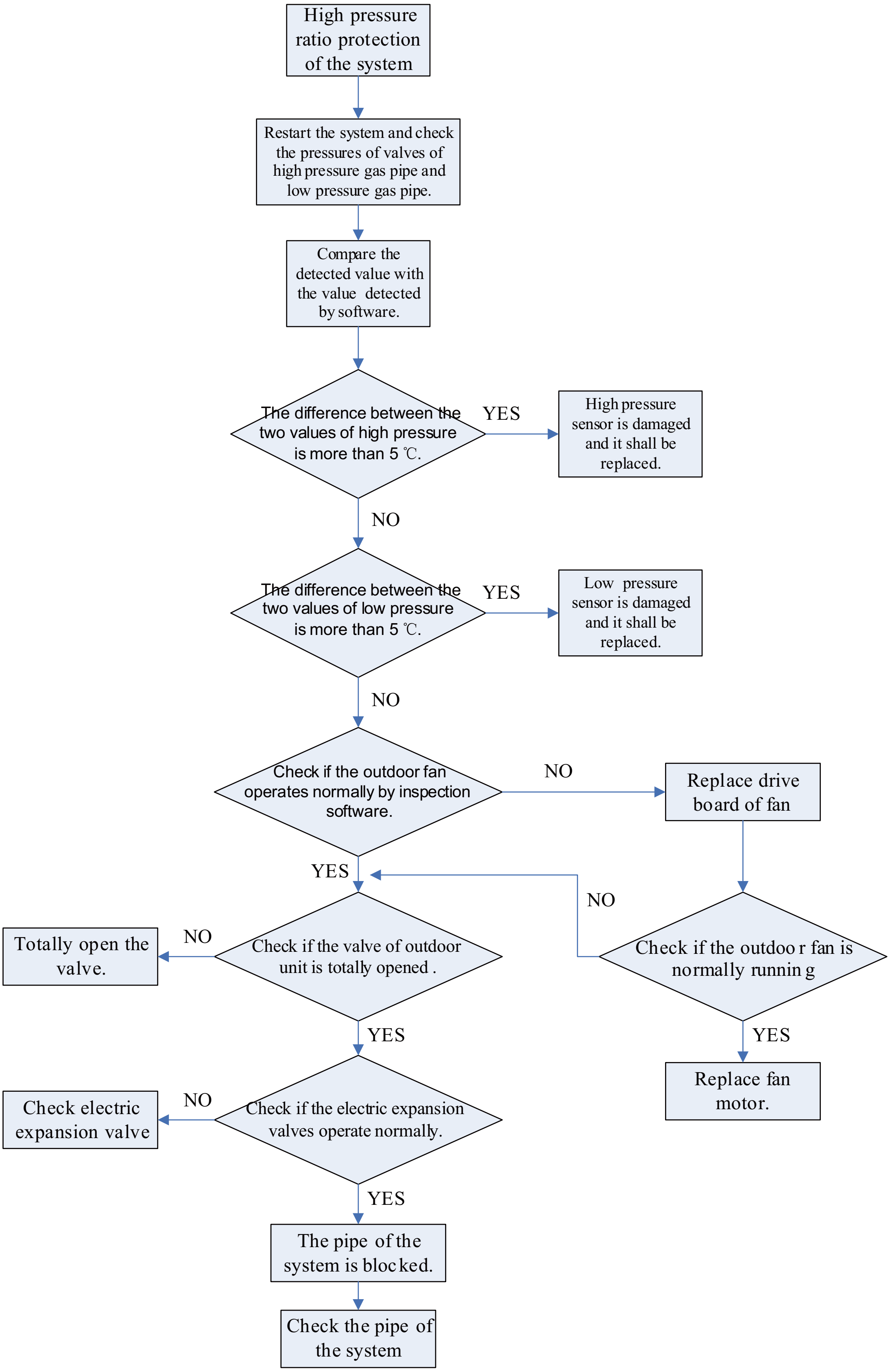
1.5.1 When the system judge that it is low pressure protection, check it as follows:


Low-pressure protection
Use pressure gauge to measure if the pressure is really low ?
NO
Refer to low pressure sensor error
YES
Check if the refrigerant in the system is too low ?
YES
Add refrigerant according to the nominal refrigerant volume on nameplate and the calculated charge volume
NO
Check if the operation mode of indoor unit is set properly ?
NO
Refer to the Instruction Manual for Indoor Unit
YES
Check if the gas valve and liquid valve of outdoor unit are fully open ?
NO
Fully open the valve
YES
Check if the front panel of outdoor unit is covered tightly?
NO
Cover up the front panel properly .
YES
Check if the air inlet and outlet of the indoor and outdoor exchanger is smooth ?
NO
Remove the obstructions
YES
Check if the indoor and outdoor fans run normally ?
YES
Measure the fan motor and signal input
NO
Check if the indoor swing louver is fully open ?
NO
Measure the swing motor and signal input
YES
Check if the capacity output of outdoor unit is equal to the capacity demand of indoor units ?
NO
Refer to the dial -up of indoor and outdoor unit
YES
Check if the indoor electronic expansion valve can work normally
NO
Engage the valve body with the coil
YES
Check if the indoor / outdoor filters or radiating fins are dirty or blocked ?
YES
Refer to the Repair and Maintenance
NO
The system pipe is blocked
Focus on checking the inlet and outlet of the connection between indoor units and main pipe . Also focus on checking the electronic expansion valve of indoor unit and outdoor unit . Replace the electronic expansion valve , drying filter and other parts

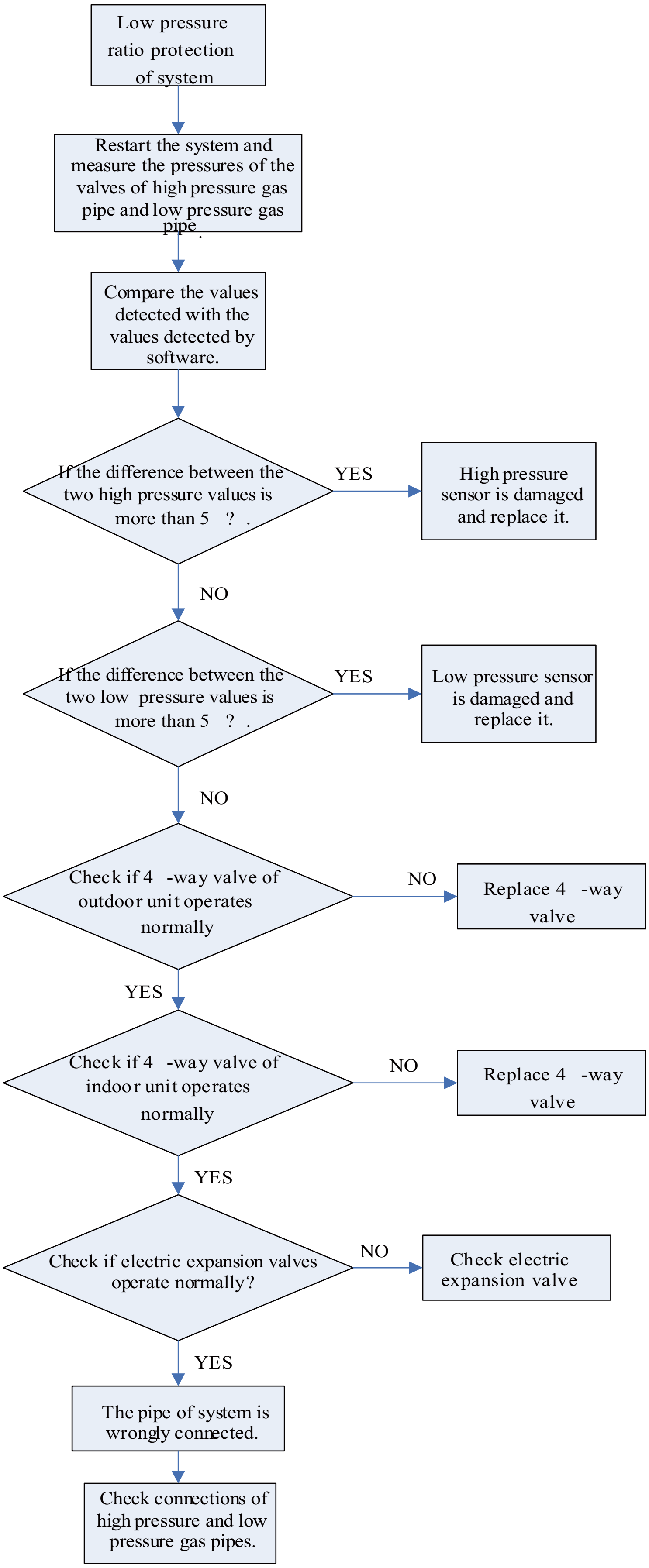
1.5.2 When the system judge that it is inadequate refrigerants protection, check it as follows:


Inadequate refrigerants protection
Measure the high pressure of system when the complete unit has been stopped for 30 min.
Transfer the high pressure detected to the corresponding temp value
Check if the saturation temp corresponding to high pressure is lower than outdoor ambient temp for over 5 ℃
NO
Check if the refrigerants volume conforms to the requirements.
NO
YES
YES
Start the system and only turn on cooling mode of the indoor unit with max. capacity for 30 min.
There is leak in the system and check the pipeline
Add refrigerants according to requirements
Check if high pressure of running mode is more than 15 ℃.
YES
Add 3kg refrigerants in the system
NO
Check if the volume of refrigerants conform to requirements
NO
YES
There is leak in the system and check the pipeline
Add refrigerants according to requirements.

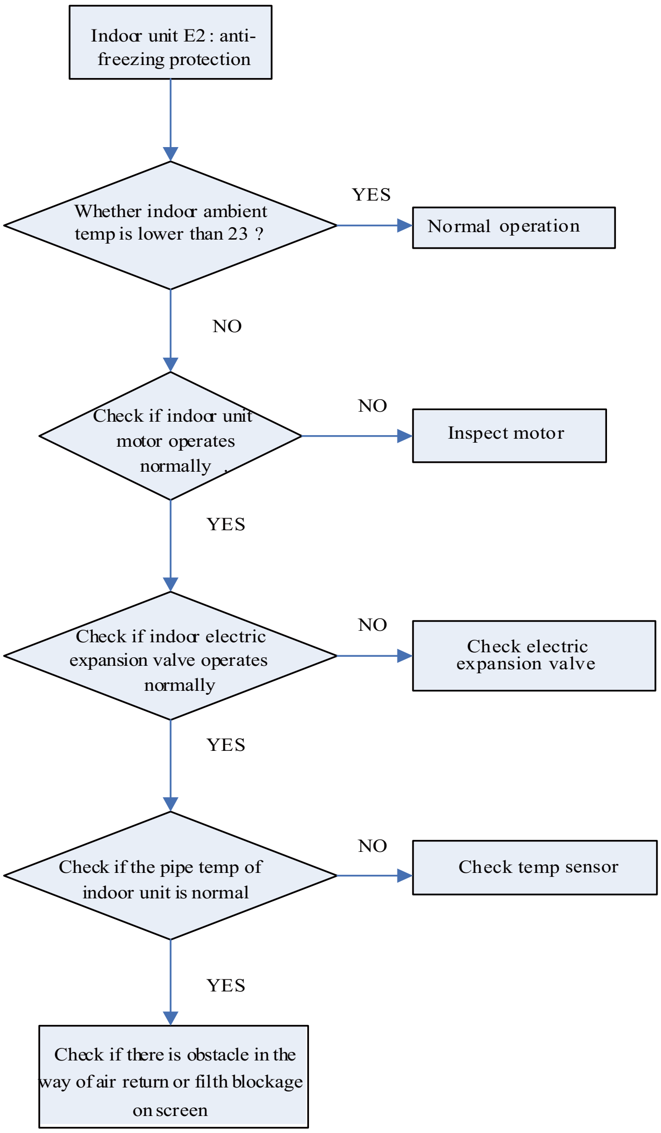
1.5.3 When the system judge that it is high pressuer ratio pressure, check it as follows:


High pressure ratio protection of the system
Restart the system and check the pressures of valves of high pressure gas pipe and low pressure gas pipe.
Compare the detected value with the value detected by software.
The difference between the two values of high pressure is more than 5 ℃.
YES
High pressure sensor is damaged and it shall be replaced.
NO
The difference between the two values of low pressure is more than 5 ℃.
YES
Low pressure sensor is damaged and it shall be replaced.
NO
Check if the outdoor fan operates normally by inspection software.
NO
Replace drive board of fan
YES
NO
Check if the outdoor fan is normally running
YES
Replace fan motor.
Totally open the valve.
NO
Check if the valve of outdoor unit is totally opened .
YES
Check electric expansion valve
NO
Check if the electric expansion valves operate normally.
YES
The pipe of the system is blocked.
Check the pipe of the system

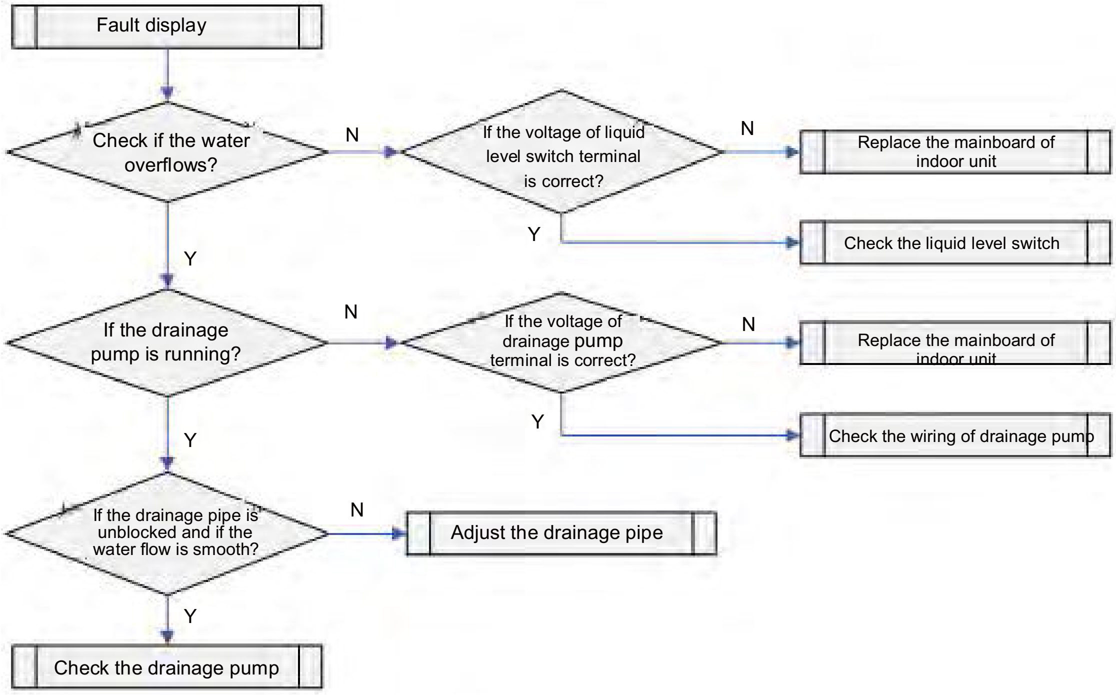
1.5.4 When the system judge that it is low pressure ration protection, check it as follows:


Low pressure ratio protection of system
Restart the system and measure the pressures of the valves of high pressure gas pipe and low pressure gas pipe .
Compare the values detected with the values detected by software.
If the difference between the two high pressure values is more than 5 ? .
YES
High pressure sensor is damaged and replace it.
NO
If the difference between the two low pressure values is more than 5 ? .
YES
Low pressure sensor is damaged and replace it.
NO
Check if 4 -way valve of outdoor unit operates normally
NO
Replace 4 -way valve
YES
Check if 4 -way valve of indoor unit operates normally
NO
Replace 4 -way valve
YES
Check if electric expansion valves operate normally?
NO
Check electric expansion valve
YES
The pipe of system is wrongly connected.
Check connections of high pressure and low pressure gas pipes.

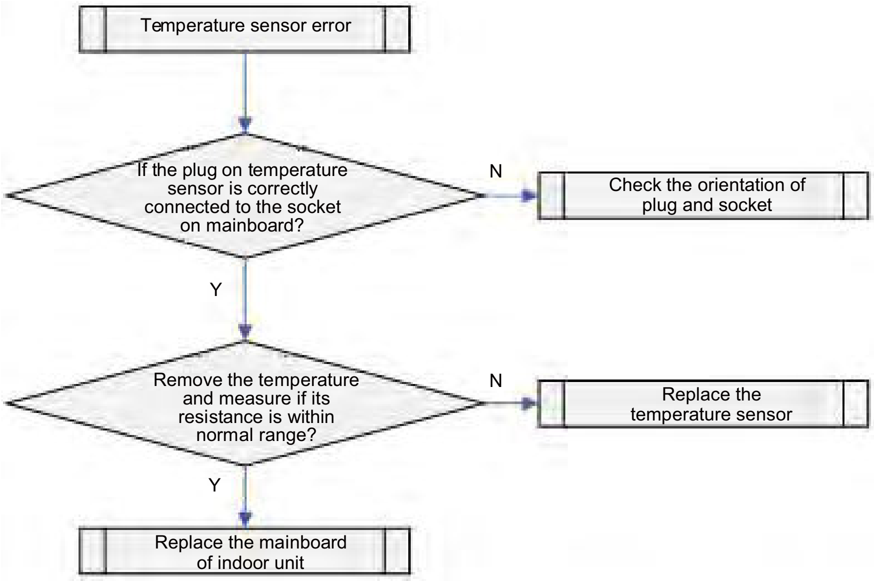
1.6 Anti-freezing protection of indoor unit


Indoor unit E2 : anti-freezing protection
Whether indoor ambient temp is lower than 23 ?
YES
Normal operation
NO
Check if indoor unit motor operates normally
NO
Inspect motor
YES
Check if indoor electric expansion valve operates normally
NO
Check electric expansion valve
YES
Check if the pipe temp of indoor unit is normal
NO
Check temp sensor
YES
Check if there is obstacle in the way of air return or filth blockage on screen

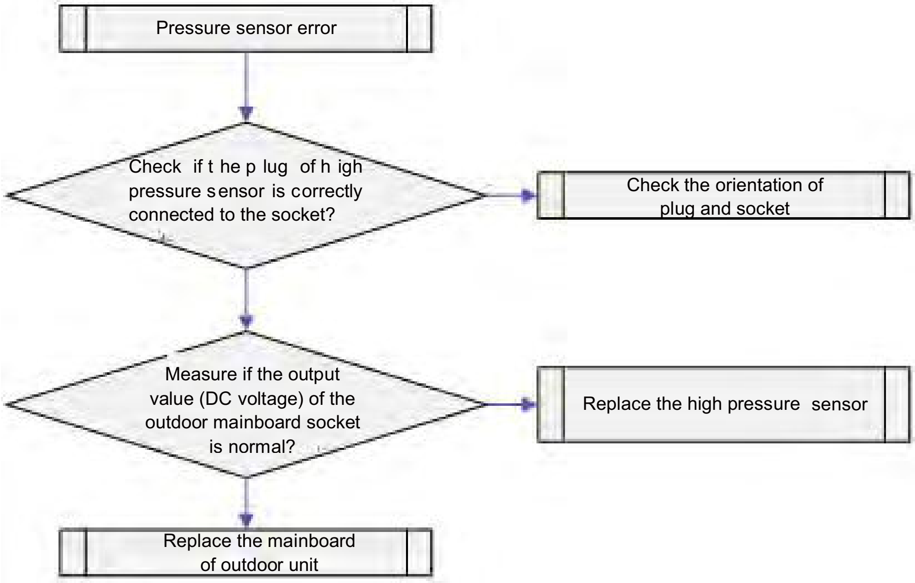
1.7 Overflow protection(just for cassette type indoor unit)


Fault display
Check if the water overflows?
N
If the voltage of liquid level switch terminal is correct?
N
Replace the mainboard of indoor unit
Y
Check the liquid level switch
Y
If the drainage pump is running?
N
If the voltage of drainage pump terminal is correct?
N
Replace the mainboard of indoor unit
Y
Check the wiring of drainage pump
Y
If the drainage pipe is unblocked and if the water flow is smooth?
N
Adjust the drainage pipe
Y
Check the drainage pump

1.8 Temperature sensor Trouble


Temperature sensor error
If the plug on temperature sensor is correctly connected to the socket on mainboard?
N
Check the orientation of plug and socket
Y
Remove the temperature and measure if its resistance is within normal range?
N
Replace the temperature sensor
Y
Replace the mainboard of indoor unit

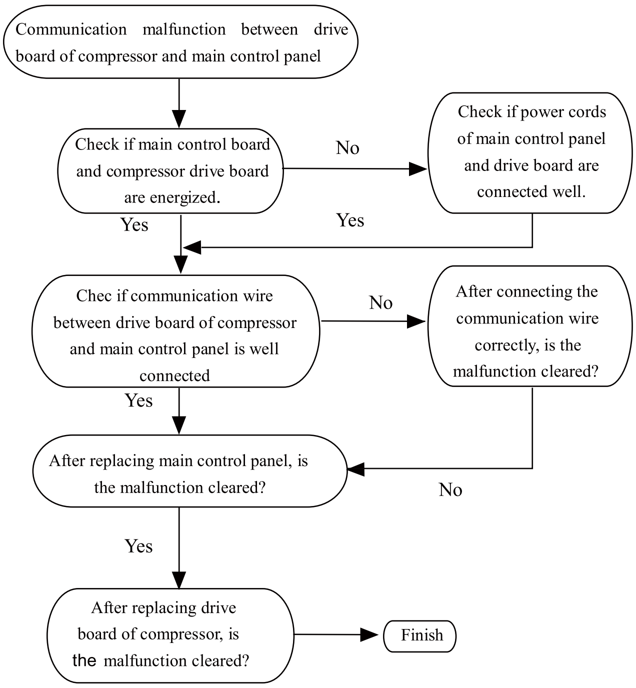
1.9 Pressure sensor Trouble


Pressure sensor error
Check if the plug of high pressure sensor is correctly connected to the socket?
Check the orientation of plug and socket
Measure if the output value (DC voltage) of the outdoor mainboard socket is normal?
Replace the high pressure sensor
Replace the mainboard of outdoor unit

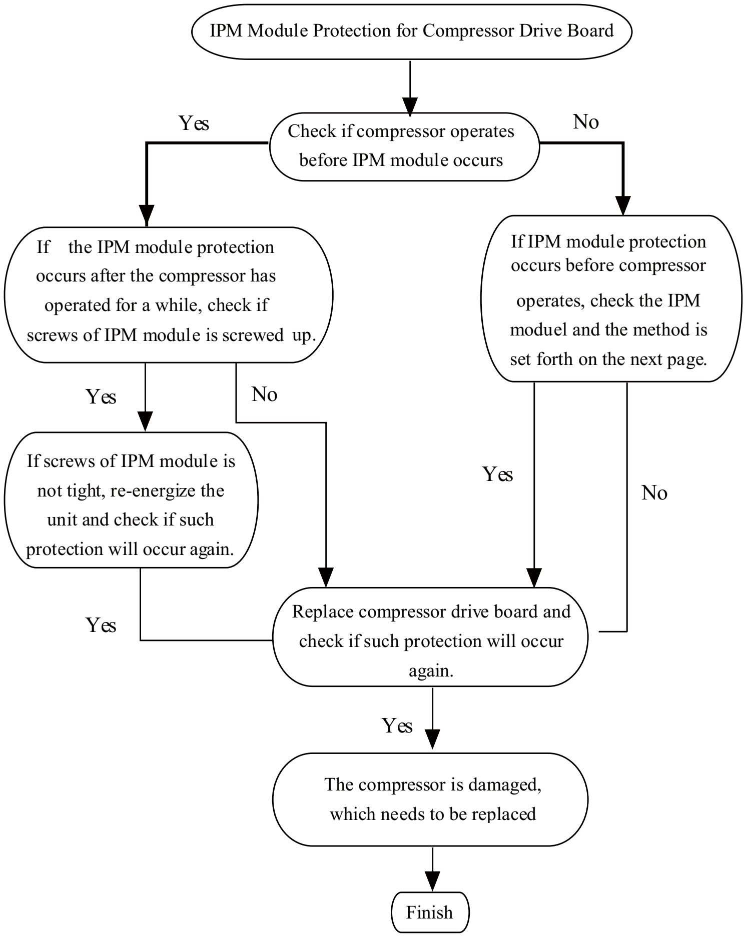
Troubleshooting of Drive Control System

When the error E5 occurs, firstly check the status of the indicating lamps on the main control board, fan motor drive board and compressor drive board, after that, check out what the error really is in accordance with the error list, then conduct the maintenance with the corresponding troubleshooting steps.

- Solution to the communication error between the compressor drive board and the main control board


Communication malfunction between drive board of compressor and main control panel
Check if main control board and compressor drive board are energized.
No
Check if power cords of main control panel and drive board are connected well.
Yes
Yes
Chec if communication wire between drive board of compressor and main control panel is well connected
No
After connecting the communication wire correctly, is the malfunction cleared?
Yes
After replacing main control panel, is the malfunction cleared?
No
Yes
After replacing drive board of compressor, is the malfunction cleared?
Finish

- Solution to the Error of the Compressor Drive Board IPM Module Protection


IPM Module Protection for Compressor Drive Board
Yes
Check if compressor operates before IPM module occurs
No
If the IPM module protection occurs after the compressor has operated for a while, check if screws of IPM module is screwed up.
If IPM module protection occurs before compressor operates, check the IPM moduel and the method is set forth on the next page.
Yes
No
If screws of IPM module is not tight, re-energize the unit and check if such protection will occur again.
Yes
No
Yes
Replace compressor drive board and check if such protection will occur again.
Yes
The compressor is damaged, which needs to be replaced
Finish

How to check out if the IPM is shortcut or not:

1. Preparation:

Prepare a digital universal meter and turn to the diode option, one minute later, remove the wires U,V, W of the compressor from the drive board.

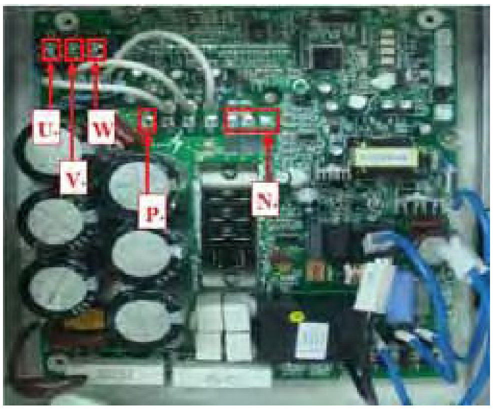
2. Steps

Step 1: Put the black probe at the place “P” and the red one on the terminals U, V, W respectively to test the voltage between them.

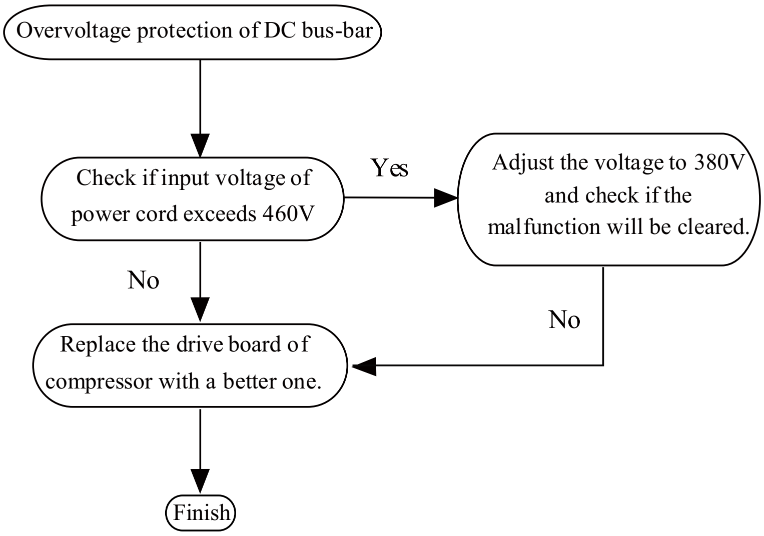
Step 2: Put the red probe at the place "N" and the black one on the terminals U, V, W respectively to test the voltage between them.

3. Conclusion

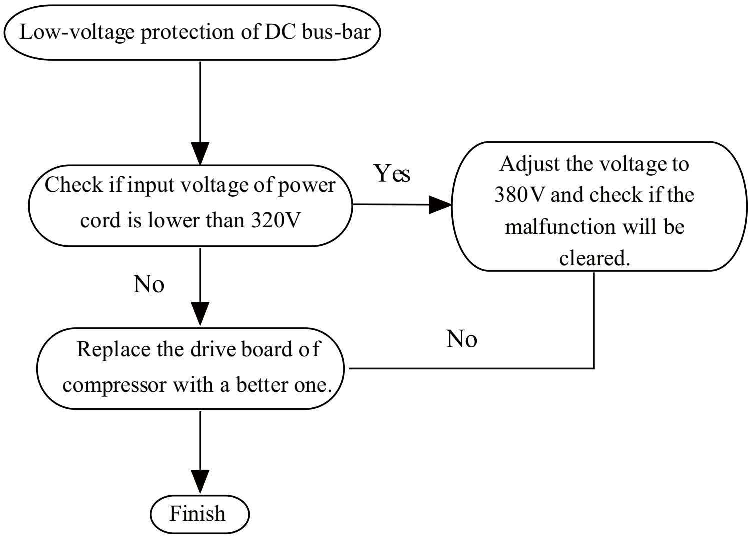
If all voltages between UP, VP, WP, NU, NV, and NW are among 0.3V~0.7V, it indicates that the module IPM is normal. If anyone is 0V, it indicates the module IPM is damaged.



- Troubleshooting of low-voltage protection of DC bus-bar

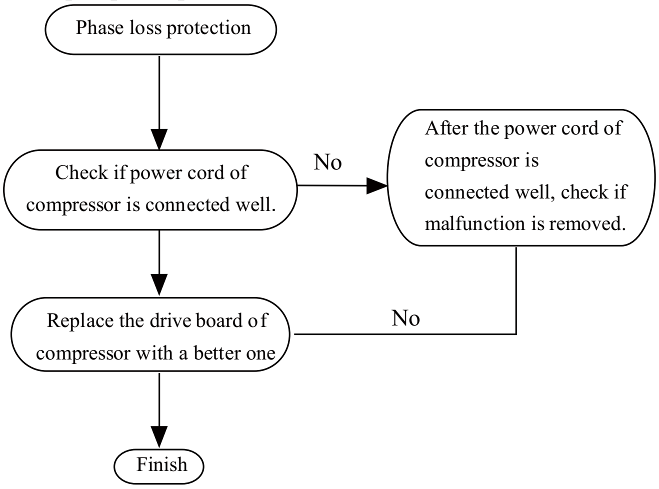

Overvoltage protection of DC bus-bar
Check if input voltage of power cord exceeds 460V
Yes
Adjust the voltage to 380V and check if the malfunction will be cleared.
No
No
Replace the drive board of compressor with a better one.
Finish

- Solutions to the error of DC bus low voltage protection

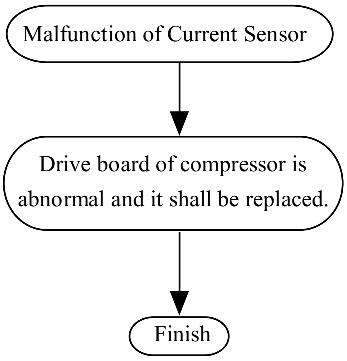

Low-voltage protection of DC bus-bar
Check if input voltage of power cord is lower than 320V
Yes
Adjust the voltage to 380V and check if the malfunction will be cleared.
No
No
Replace the drive board of compressor with a better one.
Finish

Note: the solution to the DC bus high/low voltage protection of both the compressor and the fan motor drive board is the same.

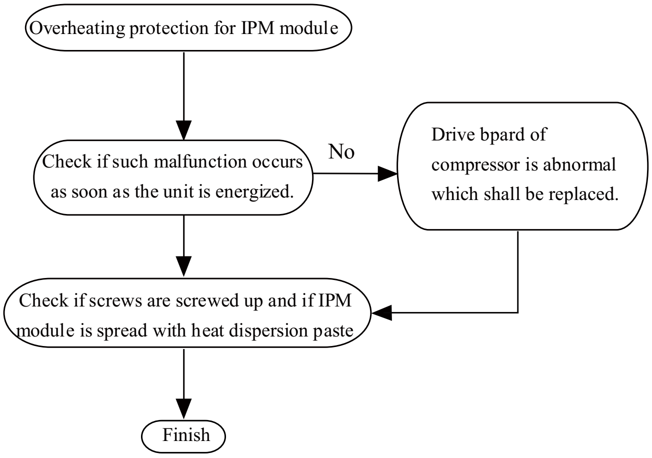
- Solution to the error of the open phase protection


Phase loss protection
Check if power cord of compressor is connected well.
No
After the power cord of compressor is connected well, check if malfunction is removed.
Replace the drive board of compressor with a better one
No
Finish

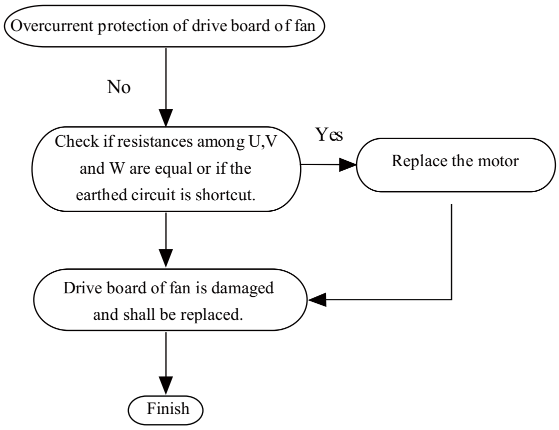
- Solution to the error of the current sensor


Malfunction of Current Sensor
Drive board of compressor is abnormal and it shall be replaced.
Finish

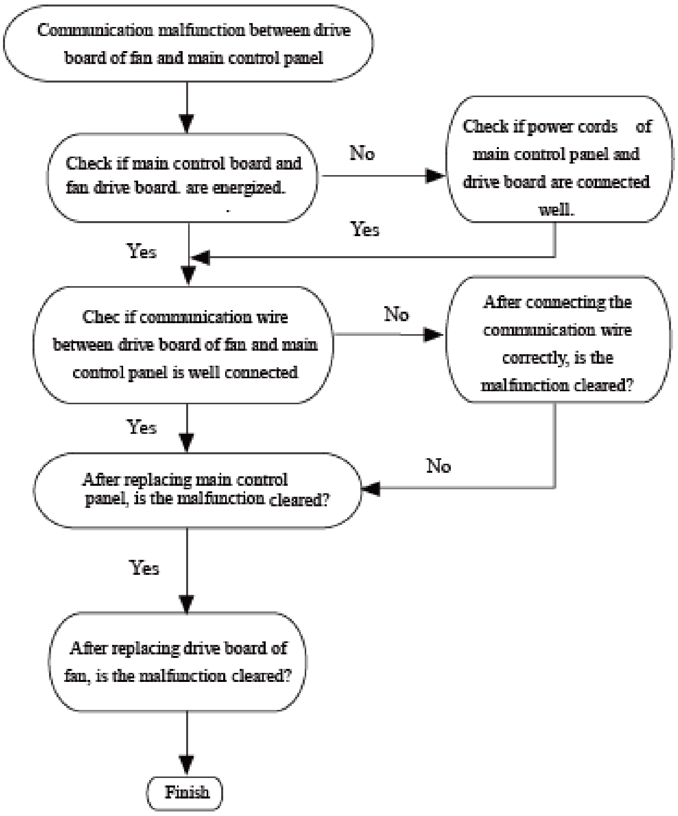
- Solution to the error of IPM high temperature protection


Overheating protection for IPM module
Check if such malfunction occurs as soon as the unit is energized.
No
Drive bpard of compressor is abnormal which shall be replaced.
Check if screws are screwed up and if IPM module is spread with heat dispersion paste
Finish

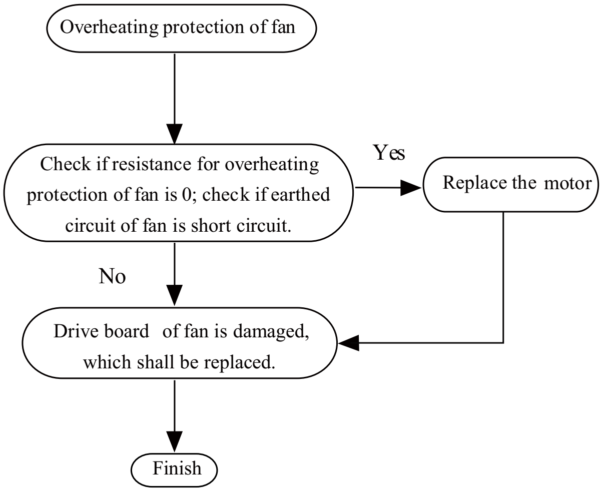
- Solution to the error of the overcurrent of the fan motor drive


Overcurrent protection of drive board of fan
No
Check if resistances among U,V and W are equal or if the earthed circuit is shortcut.
Yes
Replace the motor
Drive board of fan is damaged and shall be replaced.
Finish

- Solution to the communication error of the fan motor drive board


Communication malfunction between drive board of fan and main control panel
Check if main control board and fan drive board. are energized.
No
Check if power cords of main control panel and drive board are connected well.
Yes
Yes
Chec if communication wire between drive board of fan and main control panel is well connected
No
After connecting the communication wire correctly, is the malfunction cleared?
Yes
No
After replacing main control panel, is the malfunction cleared?
Yes
After replacing drive board of fan, is the malfunction cleared?
Finish

- Troubleshooting of overheating of fan


Overheating protection of fan
Check if resistance for overheating protection of fan is 0; check if earthed circuit of fan is short circuit.
Yes
Replace the motor
No
Drive board of fan is damaged, which shall be replaced.
Finish

- Communication Error(E6)

Please refer to the Debugging Part.

2 RESISTANCES OF COMMON TEMPERATURE SENSING BULBS

2.1. 15 kΩ

Temp.(°C)	Resistance (kΩ)	Volt. (15K/5V)	Volt. (15K/3.3V)	Temp.(°C)	Resistance (kΩ)	Volt. (15K/5V)	Volt. (15K/3.3V)
-20	144.000	0.472	0.311	71	2.523	4.280	2.825
-19	138.100	0.490	0.323	72	2.439	4.301	2.838
-18	128.600	0.522	0.345	73	2.358	4.321	2.852
-17	121.600	0.549	0.362	74	2.280	4.340	2.865
-16	115.000	0.577	0.381	75	2.205	4.359	2.877
-15	108.700	0.606	0.400	76	2.133	4.378	2.889
-14	102.900	0.636	0.420	77	2.064	4.395	2.901
-13	97.400	0.667	0.440	78	1.997	4.413	2.912
-12	92.220	0.699	0.462	79	1.933	4.429	2.923
-11	87.350	0.733	0.484	80	1.871	4.445	2.934
-10	82.750	0.767	0.506	81	1.811	4.461	2.945
-9	78.430	0.803	0.530	82	1.754	4.477	2.955
-8	74.350	0.839	0.554	83	1.699	4.491	2.964
-7	70.500	0.877	0.579	84	1.645	4.506	2.974
-6	66.880	0.916	0.605	85	1.594	4.520	2.983
-5	63.460	0.956	0.631	86	1.544	4.533	2.992
-4	60.230	0.997	0.658	87	1.497	4.546	3.001
-3	57.180	1.039	0.686	88	1.451	4.559	3.009
-2	54.310	1.082	0.714	89	1.408	4.571	3.017
-1	51.590	1.126	0.743	90	1.363	4.584	3.025
0	49.020	1.172	0.773	91	1.322	4.595	3.033
1	46.800	1.214	0.801	92	1.282	4.606	3.040
2	44.310	1.265	0.835	93	1.244	4.617	3.047
3	42.140	1.313	0.866	94	1.207	4.628	3.054
4	40.090	1.361	0.899	95	1.171	4.638	3.061
5	38.150	1.411	0.931	96	1.136	4.648	3.068
6	36.320	1.461	0.965	97	1.103	4.658	3.074
7	34.580	1.513	0.998	98	1.071	4.667	3.080
8	32.940	1.564	1.033	99	1.039	4.676	3.086
9	31.380	1.617	1.067	100	1.009	4.685	3.092
10	29.900	1.670	1.102	101	0.980	4.693	3.098
11	28.510	1.724	1.138	102	0.952	4.702	3.103
12	27.180	1.778	1.174	103	0.925	4.710	3.108
13	25.920	1.833	1.210	104	0.898	4.717	3.114
14	24.730	1.888	1.246	105	0.873	4.725	3.119
15	23.600	1.943	1.282	106	0.848	4.732	3.123
16	22.530	1.998	1.319	107	0.825	4.739	3.128
17	21.510	2.054	1.356	108	0.802	4.746	3.133
18	20.540	2.110	1.393	109	0.779	4.753	3.137
19	19.630	2.166	1.429	110	0.758	4.760	3.141
20	18.750	2.222	1.467	111	0.737	4.766	3.145
21	17.930	2.278	1.503	112	0.717	4.772	3.150
22	17.140	2.334	1.540	113	0.697	4.778	3.153
23	16.390	2.389	1.577	114	0.678	4.784	3.157
24	15.680	2.445	1.613	115	0.660	4.789	3.161

25	15.000	2.500	1.650	116	0.642	4.795	3.165
26	14.360	2.554	1.686	117	0.625	4.800	3.168
27	13.740	2.610	1.722	118	0.608	4.805	3.171
28	13.160	2.663	1.758	119	0.592	4.810	3.175
29	12.600	2.717	1.793	120	0.577	4.815	3.178
30	12.070	2.771	1.829	121	0.561	4.820	3.181
31	11.570	2.823	1.863	122	0.547	4.824	3.184
32	11.090	2.875	1.897	123	0.532	4.829	3.187
33	10.630	2.926	1.931	124	0.519	4.833	3.190
34	10.200	2.976	1.964	125	0.505	4.837	3.192
35	9.779	3.027	1.998	126	0.492	4.841	3.195
36	9.382	3.076	2.030	127	0.480	4.845	3.198
37	9.003	3.125	2.062	128	0.467	4.849	3.200
38	8.642	3.172	2.094	129	0.456	4.853	3.203
39	8.297	3.219	2.125	130	0.444	4.856	3.205
41	7.653	3.311	2.185	131	0.433	4.860	3.207
42	7.352	3.355	2.215	132	0.422	4.863	3.210
43	7.065	3.399	2.243	133	0.412	4.866	3.212
44	6.791	3.442	2.272	134	0.401	4.870	3.214
45	6.529	3.484	2.299	135	0.391	4.873	3.216
46	6.278	3.525	2.326	136	0.382	4.876	3.218
47	6.038	3.565	2.353	137	0.372	4.879	3.220
48	5.809	3.604	2.379	138	0.363	4.882	3.222
49	5.589	3.643	2.404	139	0.355	4.885	3.224
50	5.379	3.680	2.429	140	0.346	4.887	3.226
51	5.179	3.717	2.453	141	0.338	4.890	3.227
52	4.986	3.753	2.477	142	0.330	4.892	3.229
53	4.802	3.787	2.500	143	0.322	4.895	3.231
54	4.625	3.822	2.522	144	0.314	4.897	3.232
55	4.456	3.855	2.544	145	0.307	4.900	3.234
56	4.294	3.887	2.566	146	0.299	4.902	3.235
57	4.139	3.919	2.586	147	0.292	4.904	3.237
58	3.990	3.949	2.607	148	0.286	4.907	3.238
59	3.848	3.979	2.626	149	0.279	4.909	3.240
60	3.711	4.008	2.646	150	0.273	4.911	3.241
61	3.579	4.037	2.664	151	0.266	4.913	3.242
62	3.454	4.064	2.682	152	0.261	4.914	3.244
63	3.333	4.091	2.700	153	0.254	4.917	3.245
64	3.217	4.117	2.717	154	0.248	4.919	3.246
65	3.105	4.143	2.734	155	0.243	4.920	3.247
66	2.998	4.167	2.750	156	0.237	4.922	3.249
67	2.898	4.190	2.766	157	0.232	4.924	3.250
68	2.797	4.214	2.781	158	0.227	4.926	3.251
69	2.702	4.237	2.796	159	0.222	4.927	3.252
70	2.611	4.259	2.811	160	0.217	4.929	3.253

2.2. 20kΩ

Temp.(°C)	Resistance (kΩ)	Volt. (20K/5V)	Volt. (20K/3.3V)	Temp.(°C)	Resistance (kΩ)	Volt. (20K/5V)	Volt. (20K/3.3V)
-30	361.8	0.262	0.173	66	3.998	4.167	2.750
-29	339.8	0.278	0.183	67	3.861	4.191	2.766
-28	319.2	0.295	0.195	68	3.729	4.214	2.781
-27	300	0.313	0.206	69	3.603	4.237	2.796
-26	282.2	0.331	0.218	70	3.481	4.259	2.811
-25	265.5	0.350	0.231	71	3.364	4.280	2.825
-24	249.9	0.371	0.245	72	3.252	4.301	2.838
-23	235.3	0.392	0.259	73	3.144	4.321	2.852
-22	221.6	0.414	0.273	74	3.04	4.340	2.865
-21	208.9	0.437	0.288	75	2.94	4.359	2.877
-20	196.9	0.461	0.304	76	2.844	4.378	2.889
-19	181.4	0.497	0.328	77	2.752	4.395	2.901
-18	171.4	0.522	0.345	78	2.663	4.412	2.912
-17	162.1	0.549	0.362	79	2.577	4.429	2.923
-16	153.3	0.577	0.381	80	2.495	4.445	2.934
-15	145	0.606	0.400	81	2.415	4.461	2.944
-14	137.2	0.636	0.420	82	2.339	4.476	2.954
-13	129.9	0.667	0.440	83	2.265	4.491	2.964
-12	123	0.699	0.462	84	2.194	4.506	2.974
-11	116.5	0.733	0.484	85	2.125	4.520	2.983
-10	110.3	0.767	0.507	86	2.059	4.533	2.992
-9	104.6	0.803	0.530	87	1.996	4.546	3.001
-8	99.13	0.839	0.554	88	1.934	4.559	3.009
-7	94	0.877	0.579	89	1.875	4.571	3.017
-6	89.17	0.916	0.605	90	1.818	4.583	3.025
-5	84.61	0.956	0.631	91	1.763	4.595	3.033
-4	80.31	0.997	0.658	92	1.71	4.606	3.040
-3	76.24	1.039	0.686	93	1.658	4.617	3.047
-2	72.41	1.082	0.714	94	1.609	4.628	3.054
-1	68.79	1.126	0.743	95	1.561	4.638	3.061
0	65.37	1.171	0.773	96	1.515	4.648	3.068
1	62.13	1.218	0.804	97	1.47	4.658	3.074
2	59.08	1.265	0.835	98	1.427	4.667	3.080
3	56.19	1.313	0.866	99	1.386	4.676	3.086
4	53.46	1.361	0.898	100	1.346	4.685	3.092
5	50.87	1.411	0.931	101	1.307	4.693	3.098
6	48.42	1.462	0.965	102	1.269	4.702	3.103
7	46.11	1.513	0.998	103	1.233	4.710	3.108
8	43.92	1.564	1.033	104	1.198	4.717	3.114
9	41.84	1.617	1.067	105	1.164	4.725	3.119
10	39.87	1.670	1.102	106	1.131	4.732	3.123
11	38.01	1.724	1.138	107	1.099	4.740	3.128
12	36.24	1.778	1.174	108	1.069	4.746	3.133
13	34.57	1.833	1.209	109	1.039	4.753	3.137
14	32.98	1.888	1.246	110	1.01	4.760	3.141

15	31.47	1.943	1.282	111	0.9825	4.766	3.145
16	30.04	1.998	1.319	112	0.9556	4.772	3.150
17	28.68	2.054	1.356	113	0.9295	4.778	3.153
18	27.39	2.110	1.393	114	0.9043	4.784	3.157
19	26.17	2.166	1.429	115	0.8799	4.789	3.161
20	25.01	2.222	1.466	116	0.8562	4.795	3.165
21	23.9	2.278	1.503	117	0.8333	4.800	3.168
22	22.85	2.334	1.540	118	0.8111	4.805	3.171
23	21.85	2.389	1.577	119	0.7895	4.810	3.175
24	20.9	2.445	1.614	120	0.7687	4.815	3.178
25	20	2.500	1.650	121	0.7485	4.820	3.181
26	19.14	2.555	1.686	122	0.7289	4.824	3.184
27	18.32	2.610	1.722	123	0.7099	4.829	3.187
28	17.55	2.663	1.758	124	0.6915	4.833	3.190
29	16.8	2.717	1.793	125	0.6736	4.837	3.192
30	16.1	2.770	1.828	126	0.6563	4.841	3.195
31	15.43	2.822	1.863	127	0.6395	4.845	3.198
32	14.79	2.874	1.897	128	0.6232	4.849	3.200
33	14.18	2.926	1.931	129	0.6074	4.853	3.203
34	13.59	2.977	1.965	130	0.5921	4.856	3.205
35	13.04	3.027	1.998	131	0.5772	4.860	3.207
36	12.51	3.076	2.030	132	0.5627	4.863	3.210
37	12	3.125	2.063	133	0.5487	4.866	3.212
38	11.52	3.173	2.094	134	0.5351	4.870	3.214
39	11.06	3.220	2.125	135	0.5219	4.873	3.216
40	10.62	3.266	2.155	136	0.509	4.876	3.218
41	10.2	3.311	2.185	137	0.4966	4.879	3.220
42	9.803	3.355	2.215	138	0.4845	4.882	3.222
43	9.42	3.399	2.243	139	0.4727	4.885	3.224
44	9.054	3.442	2.272	140	0.4613	4.887	3.226
45	8.705	3.484	2.299	141	0.4502	4.890	3.227
46	8.37	3.525	2.326	142	0.4394	4.893	3.229
47	8.051	3.565	2.353	143	0.4289	4.895	3.231
48	7.745	3.604	2.379	144	0.4187	4.897	3.232
49	7.453	3.643	2.404	145	0.4088	4.900	3.234
50	7.173	3.680	2.429	146	0.3992	4.902	3.235
51	6.905	3.717	2.453	147	0.3899	4.904	3.237
52	6.648	3.753	2.477	148	0.3808	4.907	3.238
53	6.403	3.787	2.500	149	0.3719	4.909	3.240
54	6.167	3.822	2.522	150	0.3633	4.911	3.241
55	5.942	3.855	2.544	151	0.3549	4.913	3.242
56	5.726	3.887	2.565	152	0.3468	4.915	3.244
57	5.519	3.919	2.586	153	0.3389	4.917	3.245
58	5.32	3.949	2.607	154	0.3312	4.919	3.246
59	5.13	3.979	2.626	155	0.3237	4.920	3.247
60	4.948	4.008	2.646	156	0.3164	4.922	3.249
61	4.773	4.037	2.664	157	0.3093	4.924	3.250
62	4.605	4.064	2.682	158	0.3024	4.926	3.251
63	4.443	4.091	2.700	159	0.2956	4.927	3.252
64	4.289	4.117	2.717	160	0.2891	4.929	3.253
65	4.14	4.143	2.734				

2.3. 50kΩ

Temp.(°C)	Resistance (kΩ)	Volt. (10K/5V)	Volt. (10K/3.3V)	Temp.(°C)	Resistance (kΩ)	Volt. (10K/5V)	Volt. (10K/3.3V)
-30	911.56	0.054	0.036	61	11.736	2.300	1.518
-29	853.66	0.058	0.038	62	11.322	2.345	1.548
-28	799.98	0.062	0.041	63	10.925	2.389	1.577
-27	750.18	0.066	0.043	64	10.544	2.434	1.606
-26	703.92	0.070	0.046	65	10.178	2.478	1.635
-25	660.93	0.075	0.049	66	9.8269	2.522	1.664
-24	620.94	0.079	0.052	67	9.4896	2.565	1.693
-23	583.72	0.084	0.056	68	9.1655	2.609	1.722
-22	549.04	0.089	0.059	69	8.9542	2.638	1.741
-21	516.71	0.095	0.063	70	8.5551	2.695	1.778
-20	486.55	0.101	0.066	71	8.2676	2.737	1.806
-19	458.4	0.107	0.070	72	7.9913	2.779	1.834
-18	432.1	0.113	0.075	73	7.7257	2.821	1.862
-17	407.51	0.120	0.079	74	7.4702	2.862	1.889
-16	384.51	0.127	0.084	75	7.2245	2.903	1.916
-15	362.99	0.134	0.088	76	6.9882	2.943	1.943
-14	342.83	0.142	0.094	77	6.7608	2.983	1.969
-13	323.94	0.150	0.099	78	6.542	3.023	1.995
-12	306.23	0.158	0.104	79	6.3315	3.062	2.021
-11	289.61	0.167	0.110	80	6.1288	3.100	2.046
-10	274.02	0.176	0.116	81	5.9336	3.138	2.071
-9	259.37	0.186	0.123	82	5.7457	3.175	2.096
-8	245.61	0.196	0.129	83	5.5647	3.212	2.120
-7	232.67	0.206	0.136	84	5.3903	3.249	2.144
-6	220.5	0.217	0.143	85	5.2223	3.285	2.168
-5	209.05	0.228	0.151	86	5.0605	3.320	2.191
-4	198.27	0.240	0.158	87	4.9044	3.355	2.214
-3	188.12	0.252	0.167	88	4.7541	3.389	2.237
-2	178.65	0.265	0.175	89	4.6091	3.423	2.259
-1	169.68	0.278	0.184	90	4.4693	3.456	2.281
0	161.02	0.292	0.193	91	4.3345	3.488	2.302
1	153	0.307	0.202	92	4.2044	3.520	2.323
2	145.42	0.322	0.212	93	4.0789	3.551	2.344
3	138.26	0.337	0.223	94	3.9579	3.582	2.364
4	131.5	0.353	0.233	95	3.841	3.612	2.384
5	126.17	0.367	0.242	96	3.7283	3.642	2.404
6	119.08	0.387	0.256	97	3.6194	3.671	2.423
7	113.37	0.405	0.267	98	3.5143	3.700	2.442
8	107.96	0.424	0.280	99	3.4128	3.728	2.460
9	102.85	0.443	0.292	100	3.3147	3.755	2.478
10	98.006	0.463	0.306	101	3.22	3.782	2.496
11	93.42	0.483	0.319	102	3.1285	3.809	2.514
12	89.075	0.505	0.333	103	3.0401	3.834	2.531
13	84.956	0.527	0.348	104	2.9547	3.860	2.547
14	81.052	0.549	0.362	105	2.8721	3.884	2.564

15	77.349	0.572	0.378	106	2.7922	3.909	2.580
16	73.896	0.596	0.393	107	2.715	3.932	2.595
17	70.503	0.621	0.410	108	2.6404	3.956	2.611
18	67.338	0.647	0.427	109	2.5682	3.978	2.626
19	64.333	0.673	0.444	110	2.4983	4.001	2.640
20	61.478	0.700	0.462	111	2.4308	4.022	2.655
21	58.766	0.727	0.480	112	2.3654	4.044	2.669
22	56.189	0.755	0.499	113	2.3021	4.064	2.682
23	53.738	0.784	0.518	114	2.2409	4.085	2.696
24	51.408	0.814	0.537	115	2.1816	4.105	2.709
25	49.191	0.845	0.558	116	2.1242	4.124	2.722
26	47.082	0.876	0.578	117	2.0686	4.143	2.734
27	45.074	0.908	0.599	118	2.0148	4.162	2.747
28	43.163	0.941	0.621	119	1.9626	4.180	2.759
29	41.313	0.974	0.643	120	1.9123	4.197	2.770
30	39.61	1.008	0.665	121	1.8652	4.214	2.781
31	37.958	1.043	0.688	122	1.8158	4.232	2.793
32	36.384	1.078	0.711	123	1.7698	4.248	2.804
33	34.883	1.114	0.735	124	1.7253	4.264	2.814
34	33.453	1.151	0.759	125	1.6821	4.280	2.825
35	32.088	1.188	0.784	126	1.6402	4.295	2.835
36	30.787	1.226	0.809	127	1.5996	4.310	2.845
37	29.544	1.264	0.835	128	1.5602	4.325	2.855
38	28.359	1.303	0.860	129	1.522	4.340	2.864
39	27.227	1.343	0.886	130	1.485	4.354	2.873
40	26.147	1.383	0.913	131	1.449	4.367	2.882
41	25.114	1.424	0.940	132	1.4141	4.381	2.891
42	24.128	1.465	0.967	133	1.3803	4.394	2.900
43	23.186	1.507	0.994	134	1.3474	4.406	2.908
44	22.286	1.549	1.022	135	1.3155	4.419	2.916
45	21.425	1.591	1.050	136	1.2846	4.431	2.924
46	20.601	1.634	1.078	137	1.2545	4.443	2.932
47	19.814	1.677	1.107	138	1.2233	4.455	2.940
48	19.061	1.721	1.136	139	1.1969	4.466	2.947
49	18.34	1.764	1.164	140	1.1694	4.477	2.955
50	17.651	1.808	1.193	141	1.1476	4.485	2.960
51	16.99	1.853	1.223	142	1.1166	4.498	2.969
52	16.358	1.897	1.252	143	1.0913	4.508	2.975
53	15.753	1.942	1.281	144	1.0667	4.518	2.982
54	15.173	1.986	1.311	145	1.0429	4.528	2.988
55	14.618	2.031	1.340	146	1.0197	4.537	2.995
56	14.085	2.076	1.370	147	0.9971	4.547	3.001
57	13.575	2.121	1.400	148	0.9752	4.556	3.007
58	13.086	2.166	1.429	149	0.9538	4.565	3.013
59	12.617	2.211	1.459	150	0.9331	4.573	3.018

60	12.368	2.235	1.475				

3 FEATURES OF HIGH/LOW PRESSURE SENSORS

3.1. Features of High Pressure Sensors (R410a)

Temp.(°C)	Absolute Pressure(kPa)	Volt.(V)	Temp.(°C)	Absolute Pressure(kPa)	Volt.(V)
-40	176	0.102	16	1300	1.300
-39	184	0.111	17	1337	1.340
-38	193	0.120	18	1375	1.380
-37	202	0.130	19	1413	1.421
-36	211	0.139	20	1453	1.463
-35	220	0.149	21	1493	1.506
-34	230	0.160	22	1535	1.551
-33	240	0.170	23	1577	1.596
-32	250	0.181	24	1620	1.641
-31	261	0.193	25	1664	1.688
-30	273	0.206	26	1708	1.735
-29	283	0.216	27	1754	1.784
-28	295	0.229	28	1801	1.834
-27	307	0.242	29	1848	1.884
-26	319	0.255	30	1897	1.937
-25	332	0.268	31	1946	1.989
-24	345	0.282	32	1996	2.042
-23	359	0.297	33	2048	2.098
-22	373	0.312	34	2100	2.153
-21	388	0.328	35	2153	2.210
-20	403	0.344	36	2208	2.268
-19	418	0.360	37	2263	2.327
-18	434	0.377	38	2320	2.388
-17	450	0.394	39	2377	2.448
-16	467	0.412	40	2436	2.511
-15	484	0.430	41	2495	2.574
-14	502	0.450	42	2556	2.639
-13	520	0.469	43	2618	2.705
-12	538	0.488	44	2681	2.772
-11	558	0.509	45	2745	2.841
-10	577	0.530	46	2810	2.910
-9	597	0.551	47	2876	2.980
-8	618	0.573	48	2944	3.053
-7	639	0.596	49	3013	3.126
-6	661	0.619	50	3083	3.201
-5	684	0.644	51	3154	3.277
-4	707	0.668	52	3226	3.353
-3	730	0.693	53	3300	3.432
-2	754	0.718	54	3374	3.511
-1	779	0.745	55	3450	3.592
0	804	0.772	56	3528	3.675
1	830	0.799	57	3606	3.759
2	857	0.828	58	3686	3.844
3	884	0.857	59	3767	3.930
4	912	0.887	60	3849	4.018
5	940	0.917	61	3932	4.106
6	969	0.947	62	4017	4.197
7	999	0.979	63	4103	4.288
8	1030	1.012	64	4190	4.381
9	1061	1.046	65	4278	4.475
10	1093	1.080	66	4367	4.570
11	1125	1.114	67	4457	4.666
12	1159	1.150	68	4548	4.763
13	1193	1.186	69	4639	4.860

14	1228	1.224	70	4731	4.958
15	1263	1.261	71	4893	5.130

3.2. Features of Low Pressure Sensors (R410a)

Temp.(°C)	Absolute Pressure(kPa)	Volt.(V)	Temp.(°C)	Absolute Pressure(kPa)	Volt.(V)
-70	36	0.369	-14	502	1.301
-69	38	0.373	-13	520	1.337
-68	40	0.377	-12	538	1.373
-67	43	0.383	-11	558	1.413
-66	46	0.389	-10	577	1.451
-65	48	0.393	-9	597	1.491
-64	51	0.399	-8	618	1.533
-63	54	0.405	-7	639	1.575
-62	57	0.411	-6	661	1.619
-61	61	0.419	-5	684	1.665
-60	64	0.425	-4	707	1.711
-59	68	0.433	-3	730	1.757
-58	72	0.441	-2	754	1.805
-57	76	0.449	-1	799	1.895
-56	80	0.457	0	804	1.905
-55	84	0.465	1	830	1.957
-54	89	0.475	2	857	2.011
-53	94	0.485	3	884	2.065
-52	99	0.495	4	912	2.121
-51	104	0.505	5	940	2.177
-50	109	0.515	6	969	2.235
-49	115	0.527	7	999	2.295
-48	121	0.539	8	1030	2.357
-47	127	0.551	9	1061	2.419
-46	133	0.563	10	1096	2.489
-45	140	0.577	11	1125	2.547
-44	146	0.589	12	1159	2.615
-43	154	0.605	13	1193	2.683
-42	161	0.619	14	1228	2.753
-41	168	0.633	15	1263	2.823
-40	176	0.649	16	1300	2.897
-39	184	0.665	17	1337	2.971
-38	193	0.683	18	1375	3.047
-37	202	0.701	19	1413	3.123
-36	211	0.719	20	1453	3.203
-35	220	0.737	21	1493	3.283
-34	230	0.757	22	1535	3.367
-33	240	0.777	23	1577	3.451
-32	250	0.797	24	1620	3.537
-31	261	0.819	25	1664	3.625
-30	272	0.841	26	1708	3.713
-29	283	0.863	27	1754	3.805
-28	295	0.887	28	1801	3.899
-27	307	0.911	29	1848	3.993
-26	319	0.935	30	1897	4.091
-25	332	0.961	31	1946	4.189
-24	345	0.987	32	1996	4.289
-23	359	1.015	33	2048	4.393
-22	373	1.043	34	2100	4.497
-21	388	1.073	35	2153	4.603
-20	403	1.103	36	2208	4.713
-19	418	1.133	37	2263	4.823
-18	434	1.165	38	2320	4.937
-17	450	1.197	39	2377	5.051

-16	467	1.231	40	2439	5.175
-15	484	1.265			

4 EMERGENCY MEASURES

When some unrecoverable fault occurs to one module which is connected with several others in parallel, the following emergency measures are recommended to guarantee the heating or cooling capacity of the indoor units and the service life of modules except the faulted one are not affected.

Step 1: set all indoor units under “Off” mode and cut off the power supply to the indoor and outdoor units.

Step 2:.shut off all cutoff valves of the faulted outdoor unit, including the cutoff valves of the liquid pipe, high pressure gas pipe, low pressure gas pipe, oil balancing valve, gas-liquid separator, as well as low pressure refrigerant circulating valve.

Step 3: cut off the air switch of the module.

Step 4: remove the communication line between the faulted module and other modules which are still kept connected through the communication line.

Step 5: readjust the address and quantity settings on the main board of the modules except the faulted one.

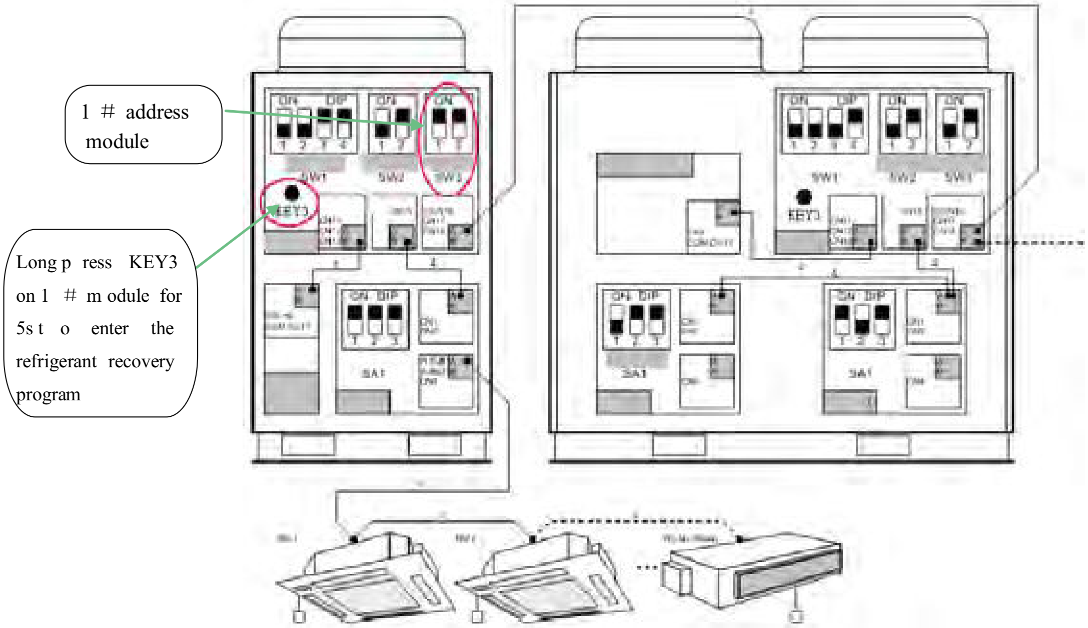
Step 6: power and restart the unit

5 REPLACEMENT OF MAIN COMPONENTS

5.1. Refrigerant Recovery Control during After-sales Maintenance

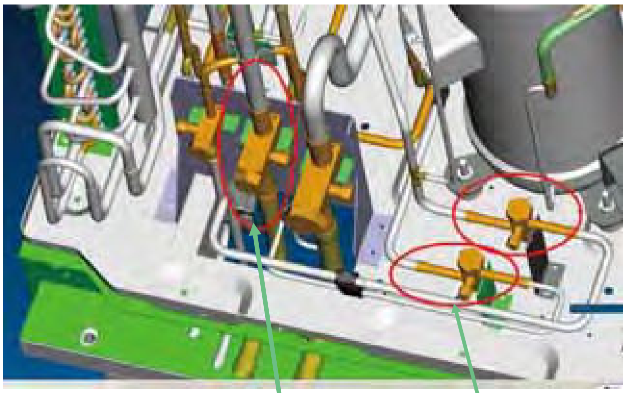
GREE heat recovery DC inverter multi-connected units system is designed as 3-pipe system. Thus, when refrigerant on the indoor side is needed to be recovered to the outdoor side in the treatment of after-sales problems, the following operation matters must be paid attention to.

GREE heat recovery DC inverter multi-connected units system has after-sales refrigerant recovery processing program. To enter refrigerant recovery mode, KEY3 on 1# module mainboard shall be pressed persistently for 5 seconds, and then all indoor units will work automatically under cooling mode and outdoor compressor is started to run.


1 # address module
Long press KEY3 on 1 # module for 5s to enter the refrigerant recovery program
ON DIP
SW1
SW2
SW3
KEY3
SA1

When the system operates 5 minutes after the refrigerant recovery program is entered, refrigerant recovery can be carried out.

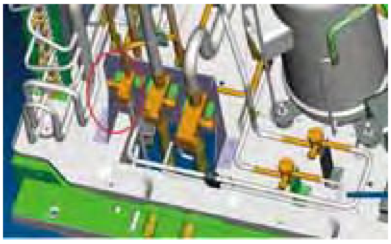
Step 1: valves and oil equilibrium valves on the high pressure gas piping of all the modules and low pressure refrigerant circulating valve of gas-liquid separator shall be shut off.



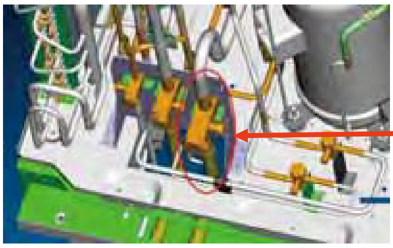
Shut off valve on high pressure gas piping

Shut off gas- liquid separator Low pressure refrigerant circulating valve

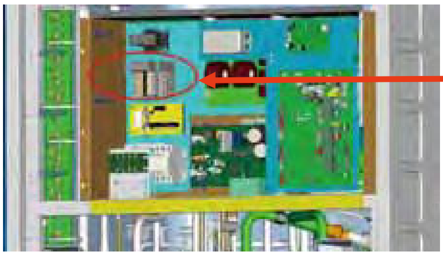
Step 2: Valve on the liquid piping of one of the modules shall be shut off, and after 1.5 minute, valve on the low pressure gas piping of the module shall be shut off, and then power supply of the module shall be turned off by cutting off the air switch of the module. And then repeat Step 2 on the next module



Shut off valve on liquid piping



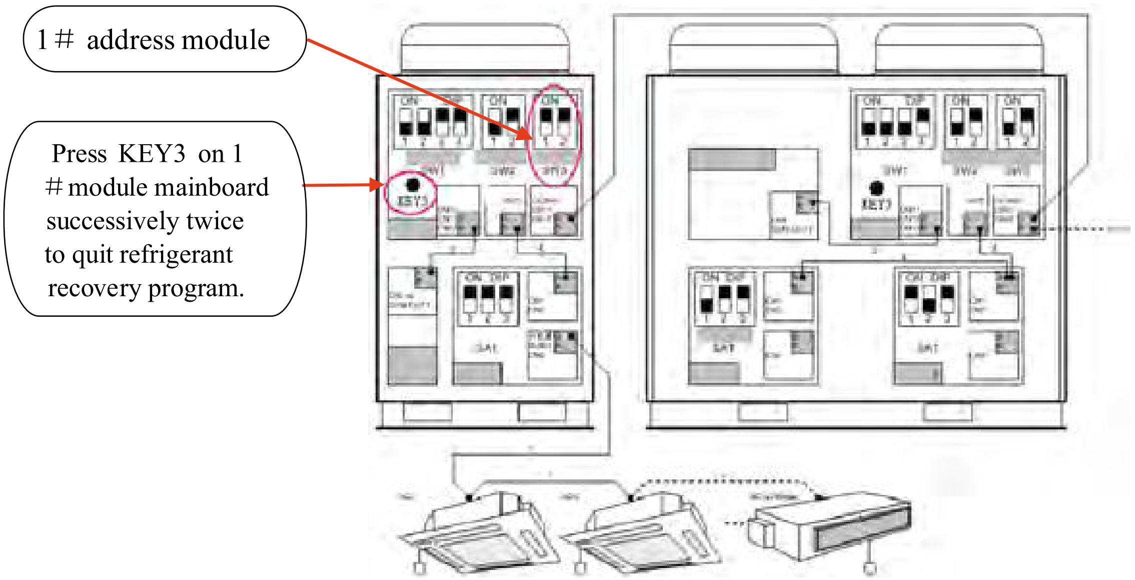
1.5 minute after the valve on the liquid piping is shut off, the valve on the low pressure gas piping shall be shut off.



Cut off the air switch in the module to switch off the power supply of the module where refrigerant is recovered.

Step 3: when low pressure temperature of the refrigerant recovery system of the last module reaches -45°C, valve on the low pressure piping shall be shut off immediately and power supply of the unit shall be switched off immediately. Refrigerant recovery finishes.

Note: When the system is executing refrigerant recovery program, you can press KEY3 on 1# module mainboard successively twice within 1 second to quit the program.

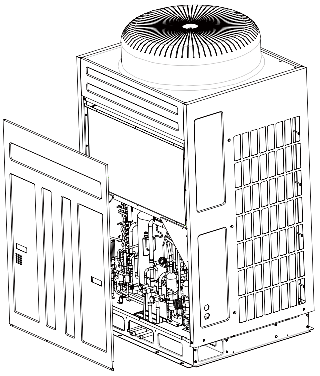
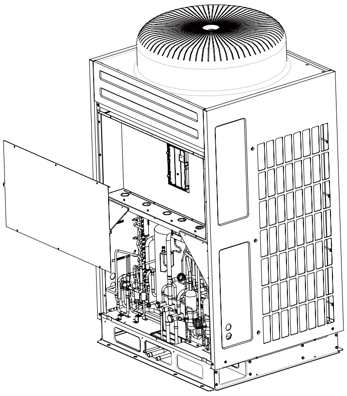
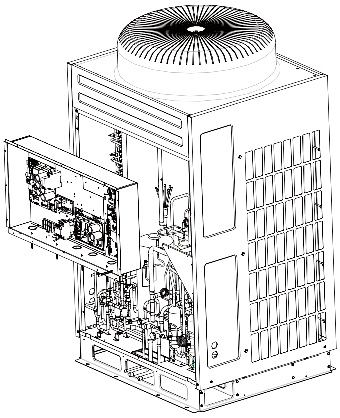
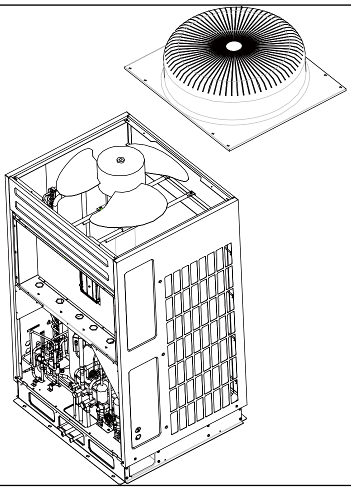


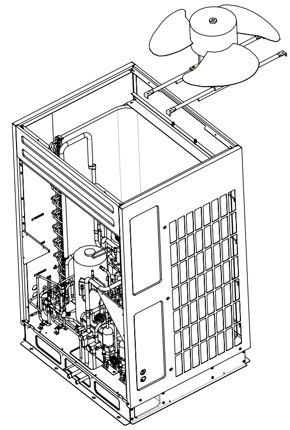
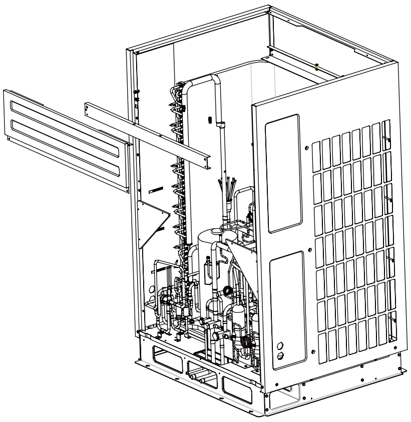
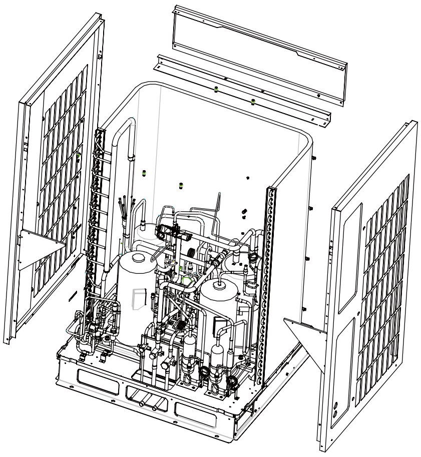
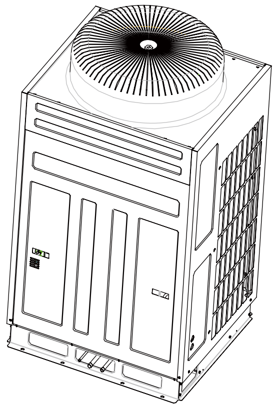
1 # address module

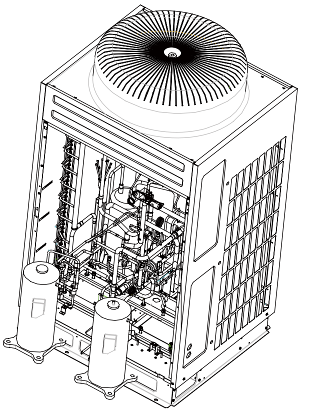
Press KEY3 on 1 # module mainboard successively twice to quit refrigerant recovery program.

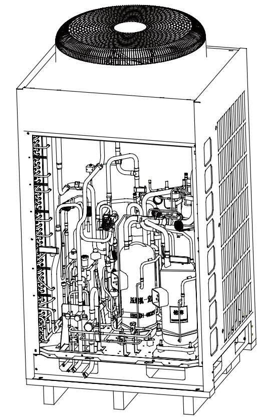
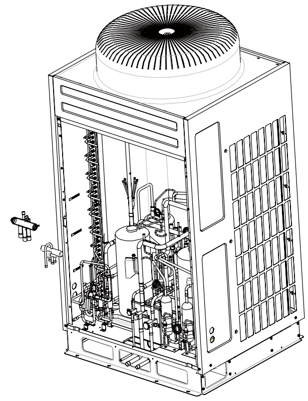
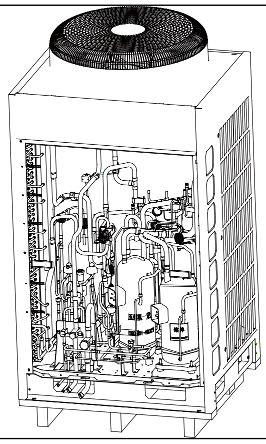
ON
DIP
SW1
SW2
SW3
KEY3
SA1

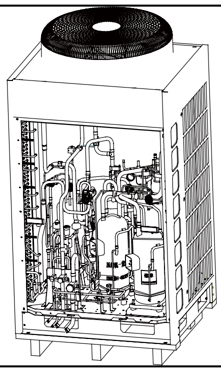
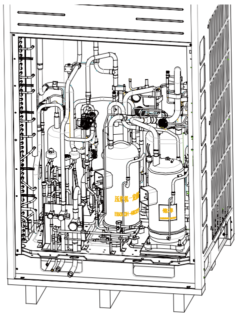
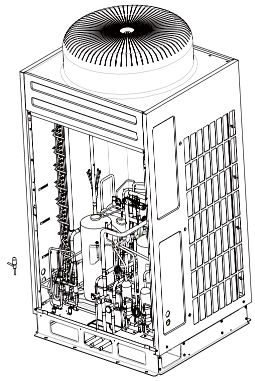
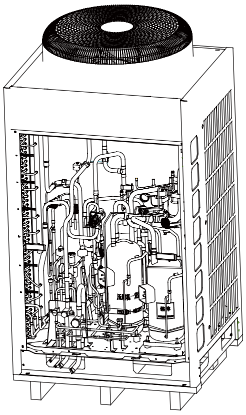
5.2.Disassembly And Assembly Procedure Of Main Partsoor Unit

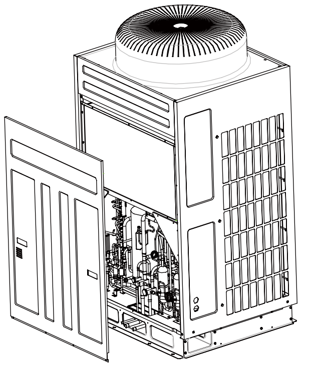
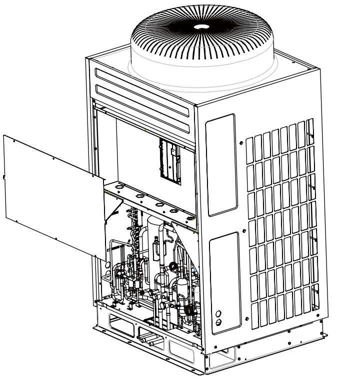
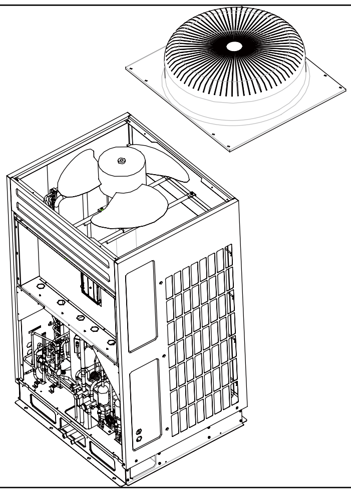
Disassembly and Assembly of external casing		
Remark :		
Step	Illustration	Handling Instruction
1. Remove the front panel		①. Use screwdriver to remove the screws; ②. Raise upward and remove the front panel.
2. Remove the electric box cover		①. Use screwdriver to remove the screws; ②. Remove the electric box cover
3. Remove the electric box cover		①. Unplug the power cords and communication lines from the mainboard; ②. Use screwdriver to remove the screws; ③. Remove the electric box
4. Remove the flow-guide cover		①. Use screwdriver to remove the screws; ②. Remove the flow-guide cover

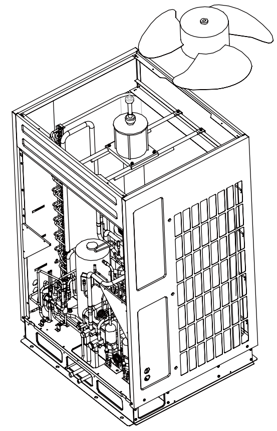
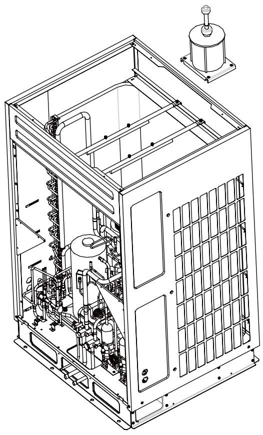
5. Remove the fan sub-assembly		①. Use screwdriver to remove the screws; ②. Remove the fan sub-assembly.
6. Remove the front panel 1 and front lining plate sub-assembly		①. Use screwdriver to remove the screws; ②. Remove the front panel 1 ③. Use screwdriver to remove the screws; ④. Remove the front lining plate sub-assembly
7. Remove the left side plate, right side plate, rear lining plate sub-assembly and back cover board		①. Use screwdriver to remove the screws fixing the left side plate and right side plate; ②. Remove the left side plate and right side plate ③. Use screwdriver to remove the screws fixing the rear lining plate sub-assembly and back cover board; ④. Remove the rear lining plate sub-assembly and back cover board
8. Assemble the unit in reverse procedures		①. Assemble the unit in reverse to the disassembly procedures and energize it for testing.

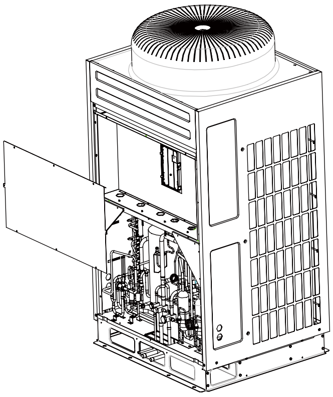
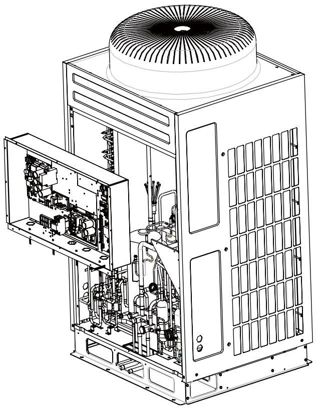
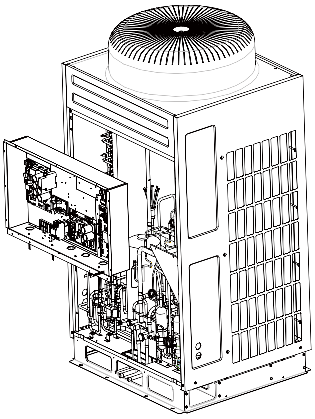
Disassembly and Assembly of Compressor		
Remark: Make sure there isn’t any refrigerant in pipe system and the power supply is cut off before removal of the compressor.		
Step	Illustration	Handling Instruction
1.Disconnect the electrical source wire		①. Draw out the electrical source wire ②. Note:Earmark the colour of wire corresponding to the terminal when removing the wire, the mistakes can be avoided when renewing the wire connection.
2.Take down the compressor from the bottom pan_		①. Use tool to remove the bolts fixing the compressor ②. Remove the compressor from chassis
3.Fix the new compressor on to the bottom pan_		

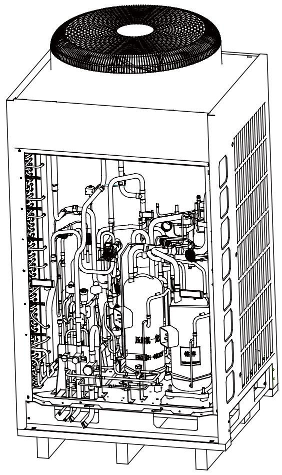
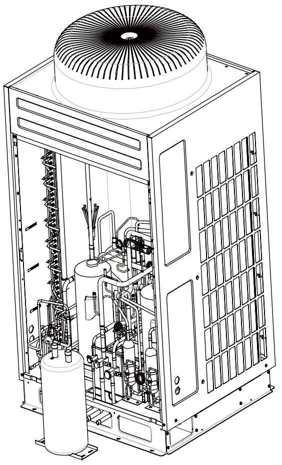
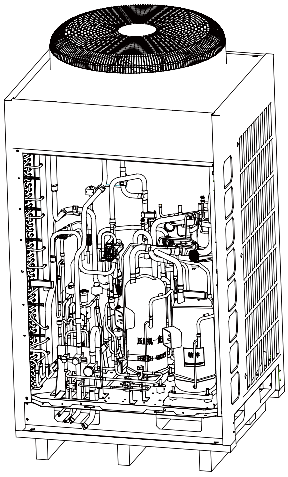
Disassembly and Assembly of 4-way valve		
Remark :		
Step	Illustration	Handling Instruction
1. Remove the coil of 4-way valve		①. Use screwdriver to remove the screws fixing the coil ②. Remove the coil of 4-way valve.
2. Use welding gun to cut the four pipes connected to 4-way valve.		①. Use welding gun to cut the pipes connected to 4-way valve (weld spot indicated in the figure)
3. Remove the 4-way valve		①. . Remove the 4-way valve
4. Replace the 4-way valve		①. Put the new 4-way valve to correct position
5. Reinstall the pipes connected to 4-way valve.		①. Reweld the pipes connected to 4-way valve
6. Install the coil of 4-way valve		①. Place the coil of 4-way valve correctly. ②. Tighten the screws with screwdriver.

<table>
<tr><td colspan="3">Disassembly and Assembly of electronic expansion valve</td></tr>
<tr><td colspan="3">Remark :</td></tr>
<tr><th>Step</th><th>Illustration</th><th>Handling Instruction</th></tr>
<tr><td>1. Remove the coil of electronic expansion valve</td><td></td><td>①. Rotate the coil of electronic expansion valve and remove it after loosening the clamp.</td></tr>
<tr><td>2. Use welding gun to cut the pipes connected to electronic expansion valve</td><td></td><td>①. Use welding gun to cut the pipes connected to electronic expansion valve</td></tr>
<tr><td>3. Replace the electronic expansion valve.</td><td></td><td>①. Put the new electronic expansion valve to correct position</td></tr>
<tr><td>4. Reinstall the pipes connected to electronic expansion valve.</td><td></td><td>①. Reweld the pipes connected to electronic expansion valve</td></tr>
<tr><td>5. Install the coil of electronic expansion valve</td><td></td><td>①. Mount the coil of electronic expansion valve onto valve body and align the clamp.</td></tr>
</table>

Disassembly and Assembly of Fan and Fan Motor		
Remark :		
Step	Illustration	Handling Instruction
1. Remove the front panel		①. Use screwdriver to remove the screws; ②. Remove the front panel;
2. Remove the electric box cover		①. Use screwdriver to remove the screws; ②. Remove the electric box cover
3. Remove the power cord of fan		①. Unplug the power cord of fan from mainboard; ②. Remove the power cord from the strap and cable hook
4. Remove the flow-guide cover		①. Use screwdriver to remove the screws; ②. Remove the flow-guide cover

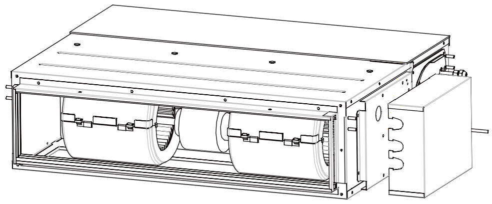
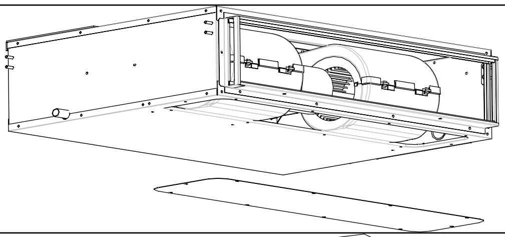
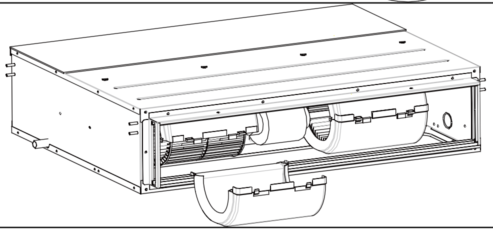
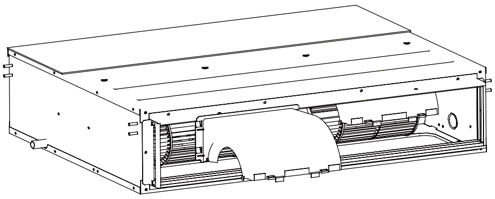
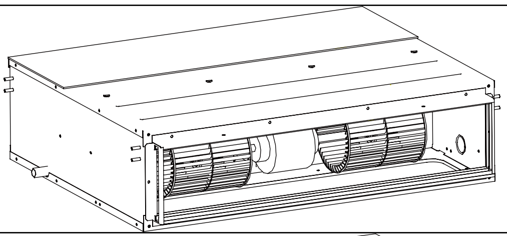
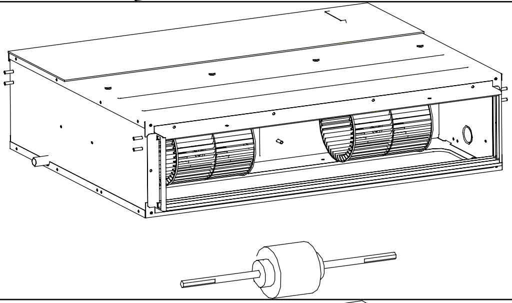
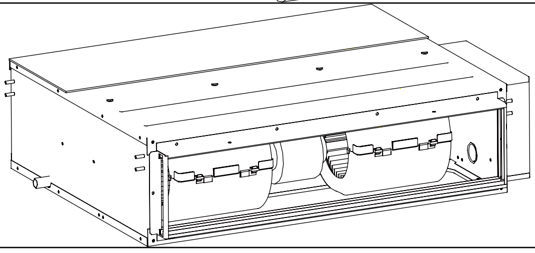
5.Remove the axial flow fan		①．Remove the lower nuts; ②．Remove the axial flow fan.
6. Remove the motor		

Disassembly and Assembly of electrical parts box		
Remark :		
Step	Illustration	Handling Instruction
1. Remove the electric box cover		①. Use screwdriver to remove the screws; ②. Remove the electric box cover
2. Remove the electric box		①. Unplug the power cords and communication lines from the mainboard; ②. Use screwdriver to remove the screws; ③. Remove the electric box
3. Assemble in reverse to the disassembly procedures.		①. Assemble the unit in reverse to the disassembly procedures and energize it for testing.

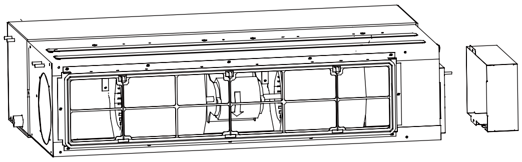
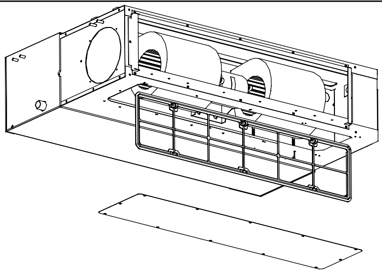
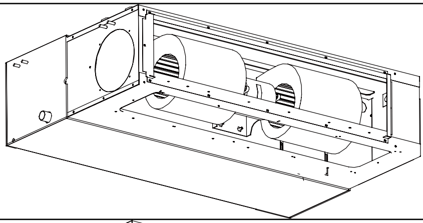
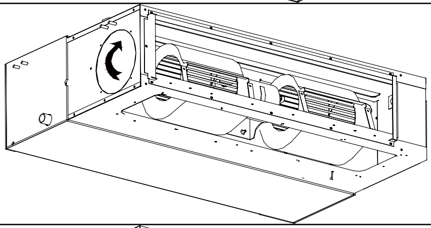
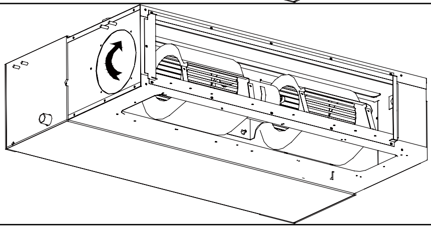
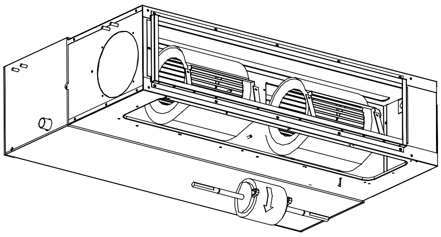
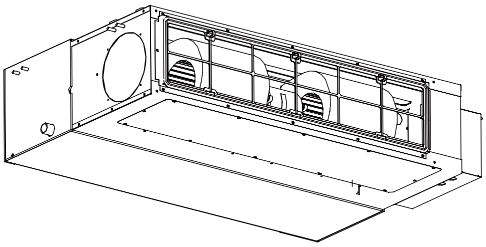
<table>
<tr><th colspan="3">Disassembly and Assembly of Vapour Liquid Separator</th></tr>
<tr><td colspan="3">Remark :</td></tr>
<tr><td>Step</td><td>Illustration</td><td>Handling Instruction</td></tr>
<tr><td>1. Disconnect the pipes connected to the gas-liquid separator</td><td></td><td>①. Disconnect the pipe connected to gas-liquid separator</td></tr>
<tr><td>2. Remove the gas-liquid separator from the chassis</td><td></td><td>①. Use tool to remove the bolts fixing the gas-liquid separator
②. Remove the gas-liquid separator from the chassis</td></tr>
<tr><td>3. Fix the new gas-liquid separator onto chassis</td><td></td><td>①. Install the gas-liquid separator correctly to chassis sub-assembly.
②. Tighten the bolts with tool</td></tr>
<tr><td>4. Connect the gas-liquid separator to system pipeline</td><td></td><td>①. Reweld the two pipes connected to gas-liquid separator.</td></tr>
</table>

5.3 Indoor unit

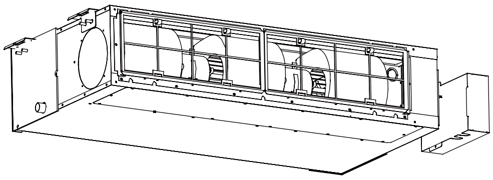
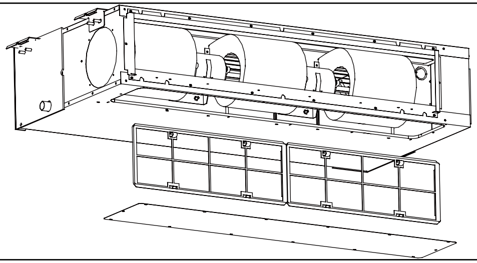
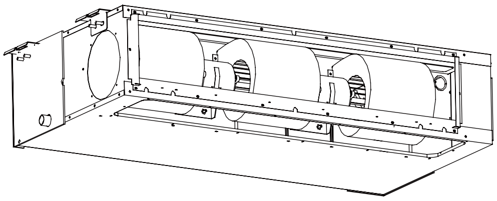
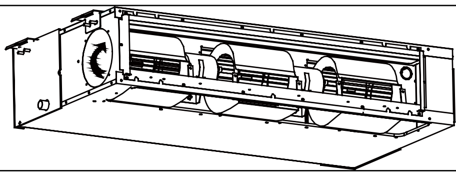
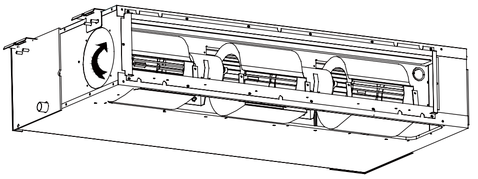
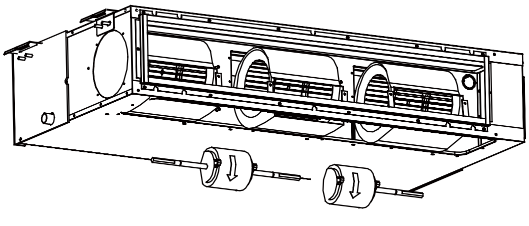
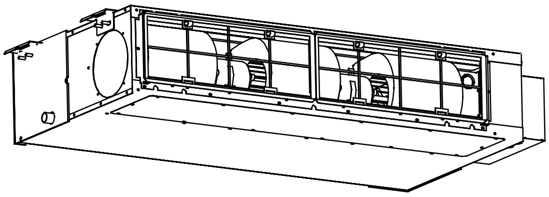
1) Duct type

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Operation instructions
1.Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2.Remove the air intake cover board		● Use the screwdriver to remove the lower air intake cover board.
3.Remove the back propeller housing		●Loosen the clamp between back propeller housing and front propeller housing. Remove the back propeller housing.
4.Remove the front propeller housing		●Use screwdriver to loosen the screws fixing the front propeller housing. Remove the front propeller housing.
5. Loosen the fan and motor.		●Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
6.Remove the motor		●Firstly, disengage the motor from motor support and then disengage the fan from the motor. Then, remove the motor from the lower air intake frame. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.
7.Replace with a new motor		●Assemble the unit in reverse to the disassembly procedures and energize it for testing.

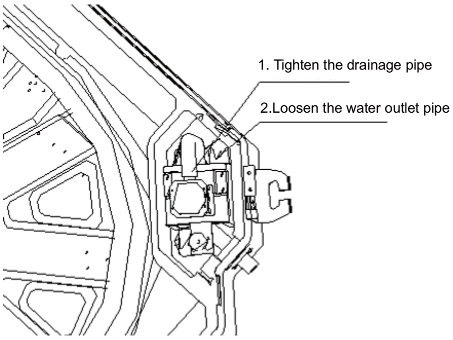
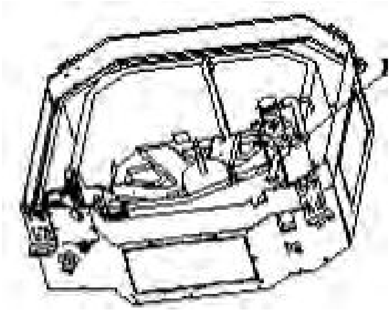
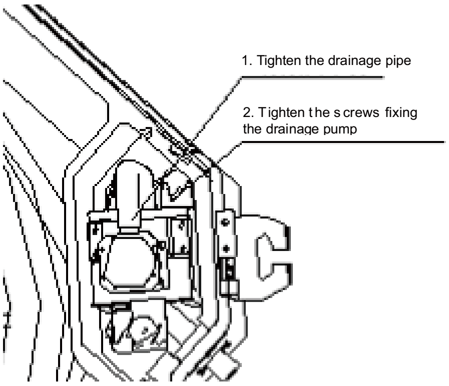
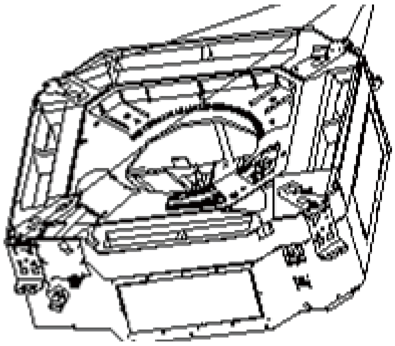
Duct-Type Unit(5.6 kW~8.0 kW)

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Operation instructions
1.Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2.Remove the filter sub-assembly and air intake cover board		● Remove the filter sub-assembly from the air intake frame and use screwdriver to remove the air intake cover board.
3.Remove the screws on fan sub-assembly.		● Remove the screws on fan sub-assembly.
4. Overturn the propeller housing		● Rotate the propeller housing to the return air inlet according to arrow direction.
5.Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
6.Replace the motor		●Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly form the motor shaft. Remove the motor from the air intake and replace with new motor. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.
7.Assemble the unit in reverse to the disassembly procedures		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

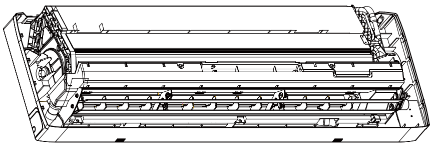
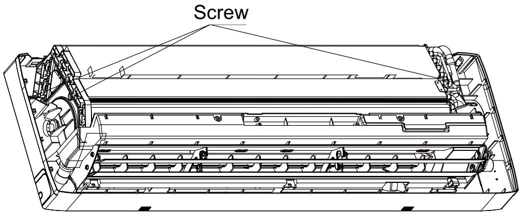
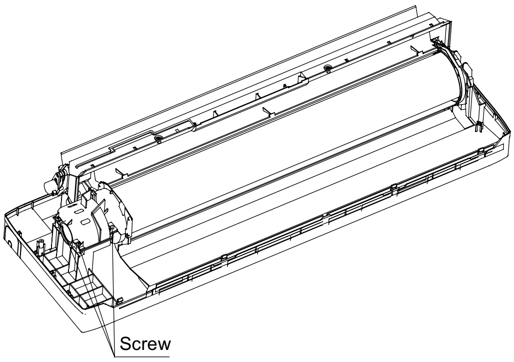
Duct-Type Unit(9.0 kW~14 kW)

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Operation instructions
1.Unplug the motor cables		●Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2.Remove the filter sub-assembly and air intake cover board		● Remove the filter sub-assembly from the air intake frame and use screwdriver to remove the air intake cover board.
3.Remove the screws on fan sub- assembly.		●Remove the screws on fan sub-assembly.
4.Overturn the propeller housing		● Rotate the propeller housing to the return air inlet according to arrow direction.
5.Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
6.Replace the motor		●Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly form the motor shaft. Remove the motor from the air intake and replace with new motor. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.
7.Assemble the unit in reverse to the disassembly procedures		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

2) Cassette type

Disassembly and assembly of draining pump		
Process	Illustration	Descriptions for operation
1. Loosen the screws fixing the water tray		● Use screwdriver to loosen the screws fixing the water tray
2. Remove the water tray		● Remove the water pump and replace it.
3. Pull out the water outlet pipe and loosen the screws fixing the water pump.	 1. Tighten the drainage pipe 2.Loosen the water outlet pipe	●Pull out the water outlet pipe and use screwdriver to loosen the screws fixing the water pump.
4 Take out the pump and replace it.		●Take out the pump and replace it.
5. Connect the drainage pipe and tighten the screws fixing the water pump.	 1. Tighten the drainage pipe 2. Tighten the screws fixing the drainage pump	● Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.
6. Mount the water tray and tighten the screws		● Use screwdriver to tighten the screws fixing the water tray

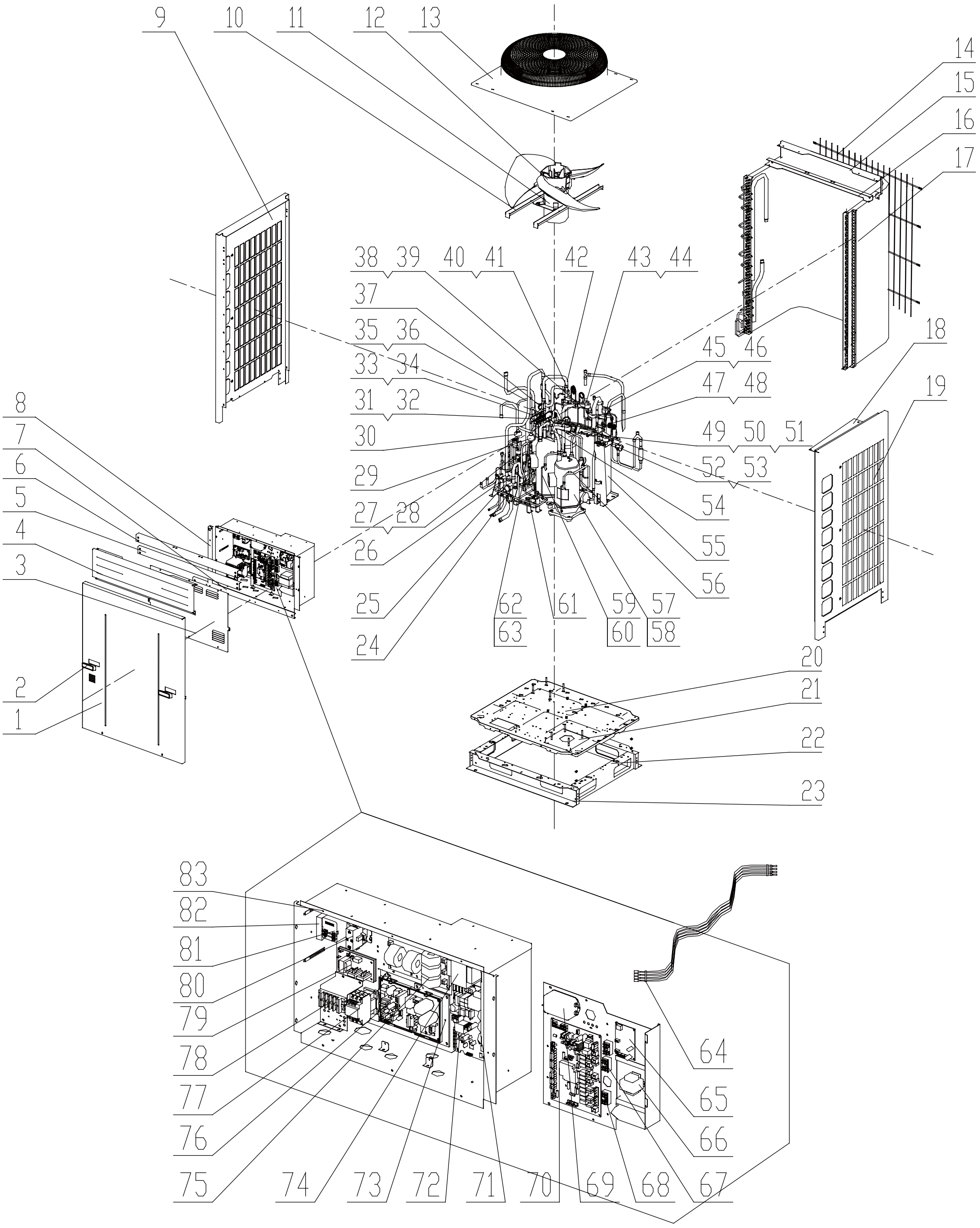
3) Wall-mounted type

<table>
<tr><td colspan="3">Disassembly and assembly of fan and motor</td></tr>
<tr><td colspan="3">Remark:Before removing the compressor, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.</td></tr>
<tr><td>Process</td><td>Illustration</td><td>Descriptions for operation</td></tr>
<tr><td>1. Firstly, remove the front panel, front case and electric box</td><td></td><td>●Firstly, use screwdriver to loosen the screws.
●Unplug the motor terminals in the electric box. Loosen the earth screws and lift up.</td></tr>
<tr><td>2.Remove the evaporator</td><td> </td><td>●Firstly, use screwdriver to remove the fixing screws on the left and right side. Then, remove the evaporator.</td></tr>
<tr><td>3.Remove the motor and cross flow fan</td><td> </td><td>● Use screwdriver to remove the screws fixing the motor clamp and remove the screws connecting the motor and cross flow fan. Then, the motor can be separated from the cross flow fan.</td></tr>
</table>

5.3.Exploded Views And Part List

5.3.1Outdoor Unit

1) GMV-Pdhm224W/Na-M, GMV-Pdhm280W/Na-M Exploded Views and parts list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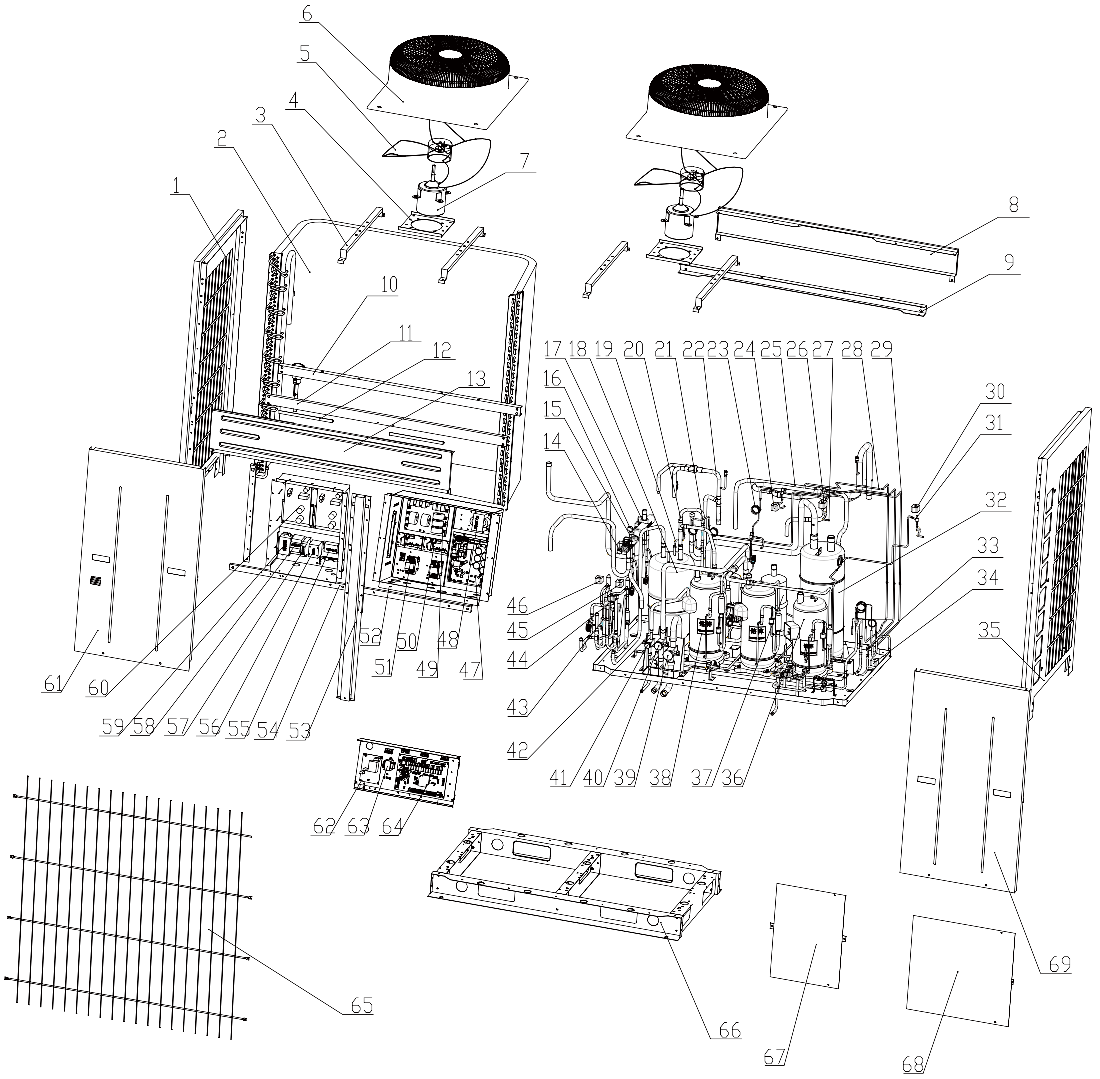
No	Description	GMV-Pdhm224W/Na-M	GMV-Pdhm280W/Na-M	
	Product Code	CN851W0020	CN851W0010	Qty
	Name of Part	Part code	Part code	
1	Front Panel Sub-Assy	01544129P	01544129P	1
2	Handle	26235253	26235253	1
3	Electric Box Cover	01424252P	01424252P	1
4	Front Cover Plate	01264142P	01264142P	1
5	Mounting Rack Sub-Assy	01324120P	01324120P	1
6	Mounting Rack Sub-Assy	01324221P	01324221P	1
7	Mounting Rack Sub-Assy	01874132P	01874132P	1
8	Carling Support	01894156P	01894156P	1
9	Left Side Plate Sub-Assy	01313256P	01313256P	1
10	Fan Motor Assy	15404115	15404115	1
11	Fan Motor	15704106	15704106	1
12	Axial Flow Fan Sub-Assy	10338702	10338702	1
13	Streamlined Dome	26904101	26904101	1
14	Rear Grill	01238740	01238740	1
15	Rear Cover Plate	01313261P	01313261P	1
16	Mounting Rack Sub-Assy	01313259P	01313259P	1
17	Condenser Assy	01124171	01124171	1
18	Air Guard	01354103	01354103	1
19	Right Side Plate	01313258P	01313258P	1
20	Chassis Sub-assy	01194306P	01194306P	1
21	Compressor Mounting Plate Sub-Assy	01324331P	01324331P	1
22	Carling Sub-assy	01874137P	01874137P	1
23	Crossbeam	01874186P	01874186P	1
24	Cut-off valve Sub-Assy	07304114	07304114	1
25	Cut-off valve Sub-Assy	07304127	07304127	1
26	Cut-off valve Sub-Assy	07304117	07304117	1
27	Electric Expansion Valve Sub-Assy	07334352	07334352	1
28	Magnet Coil	4304000408	4304000408	1
29	Electric expand valve fitting	4300010822	4300010822	1
30	Electric expand valve fitting	4300010819	4300010819	1
31	4-way Valve Sub-Assy	04144174	04144174	1
32	Magnet Coil	4300040032	4300040032	1
33	4-way Valve Sub-Assy	04144175	04144175	1
34	Magnet Coil	4300040031	4300040031	1
35	Capillary Sub-Assy	04324807	04324807	1
36	Accumulator	07424173	07424173	1
37	Capillary Sub-Assy	04104230	04104230	1
38	Connection Pipe Sub-assy	05025154	05025154	1
39	Magnet Coil	4304000419	4304000419	1
40	Electromagnetic valve sub-assy	43044133	43044133	1

41	Magnet Coil	4304000430	4304000430	1
42	Connection Pipe Sub-assy	05034342	05034342	1
43	Gas by-pass valve sub-assy	07334410	07334410	1
44	Magnet Coil	43040004	43040004	1
45	Liquid by-pass valve sub-assy	04324808	04324808	1
46	Magnet Coil	4304000405	4304000405	1
47	Oil Separator	07424129	07424129	1
48	Electric heater	7651873202	7651873202	1
49	Oil Returning Pipe Sub-Assy	04324816	04324816	1
50	Magnet Coil	4304000433	4304000433	1
51	Magnet Coil	4304000432	4304000432	1
52	Electromagnetic valve sub-assy	07304116	07304116	1
53	Magnet Coil	4304000431	4304000431	1
54	Inhalation Tube Sub-Assy	04674198	04674198	1
55	Gas-liquid Separator	07424172	07424172	1
56	Discharge Tube Sub-Assy	04634264	04634264	1
57	Compressor and fittings	00204116	00204116	1
58	Electric heater	7651540701	7651540701	1
59	Compressor and fittings	00204124	00204124	1
60	Electric heater	7651540702	7651540702	1
61	Outlet Pipe Sub-assy	04324806	04324806	1
62	Oil Balance Sub-Assy	06114150	06114150	1
63	Magnet Coil	4304000423	4304000423	1
64	Sensor sub-assy	39008048	39008048	1
65	Pinboard	30228309	30228309	1
66	Transformer	43110012	43110012	1
67	Terminal Board	42011051	42011051	1
68	Terminal Board	42011103	42011103	1
69	Filter	43130016	43130016	1
70	Main Board	30228307	30228307	1
71	Radiator	49010605	49010605	1
72	Main Board	30228606	30228606	1
73	Radiator	49018761	49018761	1
74	Reactor	43130174	43130174	1
75	Filter Board	30228111	30228111	1
76	Main Board	30229004	30229004	1
77	Single-phase Air Switch	45020214	45020214	1
78	Terminal Board	42011251	42011251	1
79	Single-phase Air Switch	46020115	46020115	1
80	AC Contactor	44010245	44010245	1
81	Phase Reverse Protector	46020054	46020054	1
82	AC Contactor	44010213	44010213	1
83	Electric Box Assy	01394886	01394886	1

2) GMV-Pdhm335W/Na-M Exploded Views and parts list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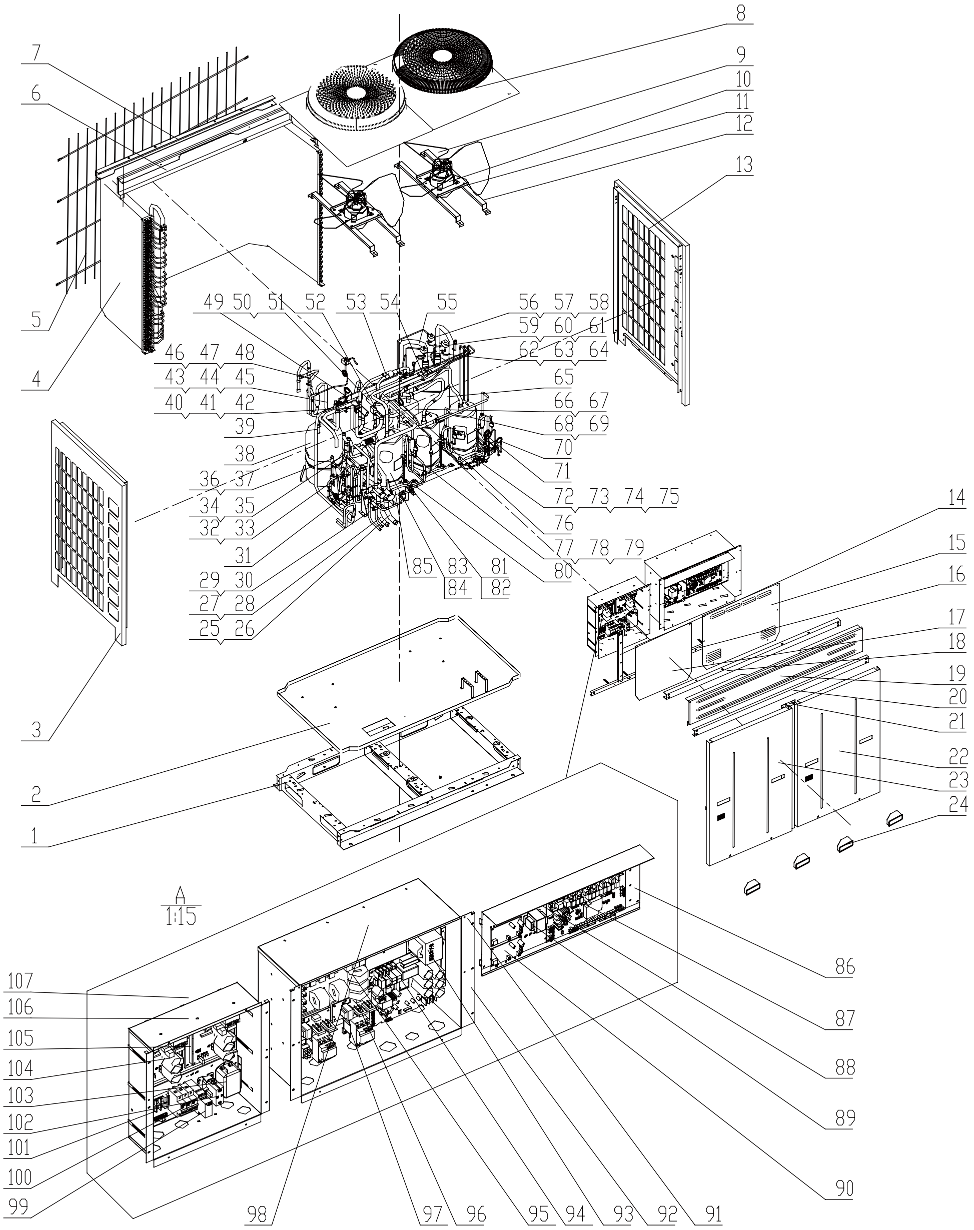
No	Product Code	CN851W0030	Qty
	Name of Part	Part code	
1	Left Side Plate Sub-Assy	01314143P	1
2	Condenser Assy	01124176	1
3	Motor Mounting Rack	01324179P	4
4	Motor Mounting Rack Sub-Assy	01324177P	2
5	Centrifugal Fan	10358202	2
6	Streamlined Dome	26904112	2
7	Fan Motor	15704105	2
8	Rear Cover Plate	01264159P	1
9	Mounting Rack Sub-Assy	01324175P	1
10	Mounting Rack Sub-Assy	01324171P	1
11	Mounting Rack Sub-Assy	01324173P	1
12	Shore Of Front Panel	01894135P	2
13	Front Cover Board	01264158P	1
14	Magnet Coil	4300040049	1
15	4-way Valve Sub-Assy	041444179	1
16	Magnet Coil	4300040030	1
17	4-way Valve Sub-Assy	04144180	1
18	Accumulator	07424176	1
19	Connection Pipe Sub-assy	04104236	1

20	Electromagnetic valve sub-assy	43044131	1
21	Electromagnetic valve sub-assy	43044129	1
22	connection Pipe Sub-assy	05034140	1
23	Gas By-pass Sub-assy	04634259	1
24	Magnet Coil	4304000425	1
25	Inhalation Tube Sub-Assy	04674216	1
26	Magnet Coil	4304000416	1
27	Liquid by-pass sub-assy	07334366	1
28	connection Pipe Sub-assy	05034159	1
29	connection Pipe Sub-assy	05034157	1
30	Magnet Coil	4304000419	1
31	Capillary Sub-Assy	04104235	1
32	Gas-liquid Separator	07424175	1
33	Equalized Oil Sub-assy	06114151	1
34	Magnet Coil	4304000423	1
35	Right Side Plate	01314214P	1
36	Compressor and fittings	00204116	1
37	Oil Separator	07424129	1
38	Compressor and fittings	00204124	2
39	Valve	07304124	1
40	Valve	07304122	1
41	Valve	07304123	1
42	Support	01804361P	1
43	Electric Expansion Valve Sub-Assy	07334375	1
44	Magnet Coil	4304000411	1
45	Electric expand valve fitting	4300010822	1
46	Electric expand valve fitting	4300010819	1
47	Main Board	30228606	1
48	Reactor	43130174	1
49	Filter Board	30228111	1
50	Over Current Protector	46020112	2
51	AC Contactor	44010213	2
52	Electric Box Sub-Assy	01394947P	1
53	Middle Pillar	01854111P	1
54	Electric Box Sub-Assy	01394792P	1
55	Terminal Board	42011051	1
56	AC Contactor	44010245	1
57	Phase Reverse Protector	46020054	1
58	Breaker	45020214	1
59	Filter	43130016	1
60	Main Board	30228002	2
61	Front Panel	01544116P	1
62	Pinboard	30228309	1
63	Transformer	43110237	1
64	Main Board	30228307	1
65	Rear Grill	01574102	1
66	Base Frame Sub-Assy	01284141	1
67	Electric Box Cover	01264170P	1
68	Electric Box Cover	01264624P	1
69	Front Panel Sub-Assy	01544604P	1

3) GMV-Pdhm400W/Na-M, GMV-Pdhm450W/Na-M Exploded Views and parts list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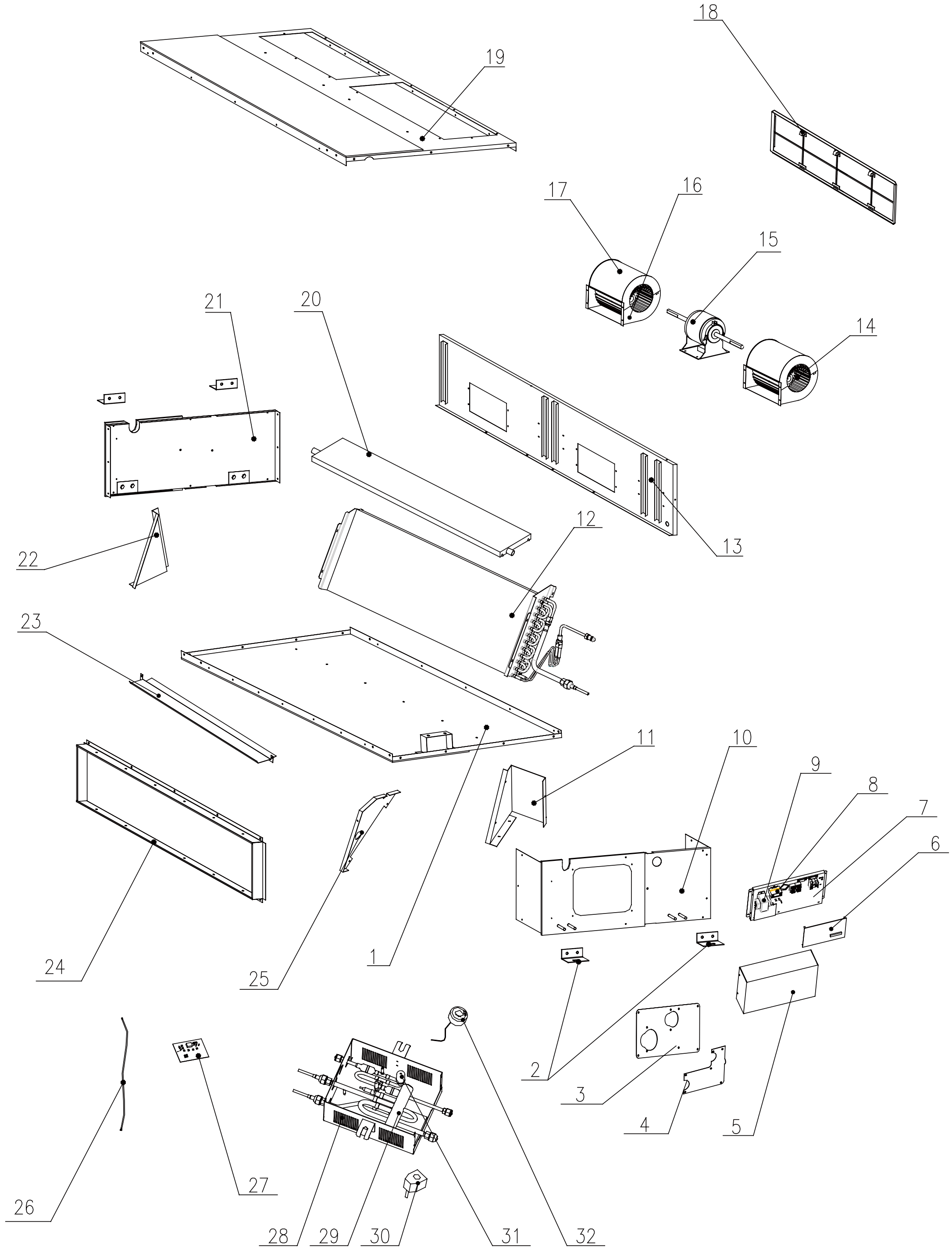
No	Description	GMV-Pdhm400W/Na-M	GMV-Pdhm450W/Na-M	Qty
	Product Code	CN851W0040	CN851W0050	
	Name of Part	Part code	Part code	
1	Base Frame Sub-Assy	01284141	01284141	1
2	Chassis Sub-assy	01194140P	01194140P	1
3	Left Side Plate Sub-Assy	01314143P	01314143P	1
4	Condenser Assy	0112417501	0112417501	1
5	Rear Grill	01574102	01574102	1
6	Rear Cover Plate	01264159P	01264159P	1
7	Mounting Rack	01324176	01324176	1
8	Streamlined Dome	26904112	26904112	1
9	Centrifugal Fan	10358202	10358202	1
10	Fan Motor	15704105	15704105	1
11	Motor Mounting Rack	01324179P	01324179P	1
12	Motor Mounting Rack Sub-Assy	01324177P	01324177P	1
13	Right Side Plate	01314214P	01314214P	1
14	Support Longitudinal Beam	01894304P	01894304P	1
15	Electric Box Cover	01264624P	01264624P	1
16	Mounting Rack Sub-Assy	01324228P	01324228P	1
17	Electric Box Cover2	01264170P	01264170P	1
18	Mounting Rack	01324171	01324171	1
19	Front Cover Plate	01264158P	01264158P	1
20	Mounting Rack	01324173	01324173	1
21	Middle Support	01854111P	01854111P	1
22	Front Panel	01544116P	01544116P	1
23	Front Panel Sub-Assy	01544604P	01544604P	1
24	Handle	26235253	26235253	1
25	Cut-off valve Sub-Assy	07304124	07304124	1
26	Cut-off Valve	07138799	07138799	1
27	Cut-off valve Sub-Assy	07304122	07304122	1
28	Cut-off Valve	07130365	07130365	1
29	Cut-off valve Sub-Assy	07304123	07304123	1
30	Cut-off Valve	07138800	07138800	1
31	Electric Expansion Valve Sub-Assy	07334363	07334363	1
32	Electromagnetic Valve	43000073	43000073	1
33	Magnet Coil	4304000411	4304000411	1
34	Electronic Expansion Valve	07334102	07334102	1
35	Electric expand valve fitting	4300010822	4300010822	1
36	Electronic Expansion Valve	07334101	07334101	1
37	Electric expand valve fitting	4300010819	4300010819	1
38	Accumulator	07424176	07424176	1
39	Connection Pipe	05034150	05034150	1
40	4-way Valve Sub-Assy	04144179	04144179	1
41	4-way Valve	43000338	43000338	1
42	Magnet Coil	4300040049	4300040049	1
43	Electromagnetic valve sub-assy	43044129	43044129	1
44	Electromagnetic Valve	43044107	43044107	1
45	Magnet Coil	4304000436	4304000436	1
46	Electromagnetic valve sub-assy	43044131	43044131	1
47	Electromagnetic Valve	43000054	43000054	1
48	Magnet Coil	4304000437	4304000437	1
49	Capillary Sub-Assy	04104236	04104236	1
50	4-way Valve Sub-Assy	04144180	04144180	1
51	4-way Valve	43000413	43000413	1
52	Magnet Coil	4300040030	4300040030	1
53	Connection Pipe Sub-assy	05034140	05034140	1
54	Inhalation Tube Sub-Assy	04674216		1

55	Connection Pipe	05034240	05034240	1
56	Liquid by-pass valve sub-assy	07334366	07334366	1
57	Electromagnetic Valve	43000054	43000054	1
58	Magnet Coil	4304000416	4304000416	1
59	Capillary Sub-Assy	04104235	04104235	1
60	Electromagnetic Valve	43000054	43000054	1
61	Magnet Coil	4304000419	4304000419	1
62	Gas by-pass valve sub-assy	04634259	04634259	1
63	Electromagnetic Valve	43000054	43000054	1
64	Magnet Coil	4304000425	4304000425	1
65	Gas-liquid Separator	07424175	07424175	1
66	Oil Separator	07424129	07424129	1
67	Electric heater(compressor)	76518732	76518732	1
68	Compressor and fittings	00204116	00204116	1
69	Electric heater	7651540701	7651540701	1
70	Connection Pipe Sub-assy	05034157	05034157	1
71	Connection Pipe Sub-assy	05034159	05034159	1
72	Capillary Sub-Assy	04104234	04104234	1
73	Electromagnetic Valve	43000055	43000055	1
74	Magnet Coil	4304000432	4304000432	1
75	Magnet Coil	4304000439	4304000439	1
76	Discharge Tube Sub-Assy	04634254	04634254	1
77	Oil Balancer Assy	06114151	06114151	1
78	Electromagnetic Valve	43000054	43000054	1
79	Magnet Coil	4304000438	4304000438	1
80	Cut-off Valve	07130366	07130366	1
81	Gas-Liquid Outlet Pipe Assy	04324926	04324926	1
82	Cut-off Valve	04324926	04324926	1
83	Compressor and fittings	00204117	00204117	1
84	Electric heater	7651540702	7651540702	1
85	Mounting Rack Sub-Assy	01324212P	01324212P	1
86	Mounting Board Assy for Electrical Parts 1	01324710	01324710	1
87	Main Board	30228307	30228307	1
88	Terminal Board	42011103	42011103	1
89	Transformer	43110237	43110237	1
90	Pinboard	30228309	30228309	1
91	Electric Box Assy	01394979	01394979	1
92	Electric Box Sub-Assy	01394947	01394947	1
93	Reactor	43130174	43130174	1
94	Main Board	30228606	30228606	1
95	Filter Board	30228111	30228111	1
96	Single-phase Air Switch	46020112	46020112	1
97	AC Contactor	44010213	44010213	1
98	Radiator	49010605	49010605	1
99	Phase Reverse Protector	46020054	46020054	1
100	Single-phase Air Switch	45020214	45020214	1
101	Terminal Board	42011051	42011051	1
102	AC Contactor	44010245	44010245	1
103	Filter	43130016	43130016	1
104	Main Board	30228002	30228002	1
105	Radiator	49018761	49018761	1
106	Electric Box Sub-Assy	01394792P	01394792P	1
107	Electric Box Assy	01394790		1

2.3.2 Indoor Unit_Exploded Views and Parts Views

1) Duct type indoor unit

(1) GMV-Rh22P/Na-K,GMV-Rh25P/Na-K,GMV-Rh28P/Na-K,GMV-Rh32P/Na-K,GMV-Rh36P/Na-K Exploded Views and parts list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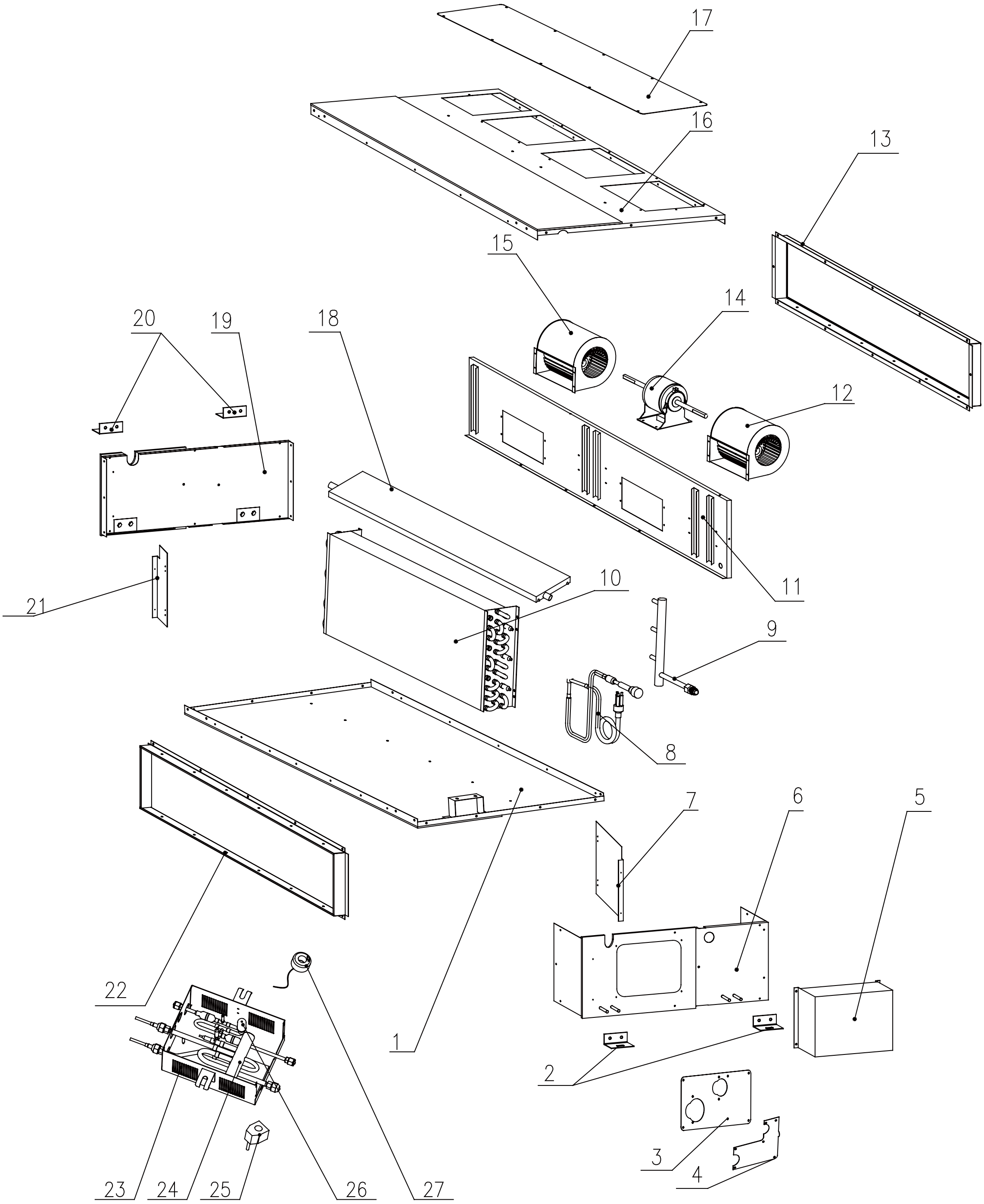
No.	Description	GMV-Rh22P/Na-K		GMV-Rh25P/Na-K		GMV-Rh28P/Na-K	
		EM800N0541		EM800N0601		EM800N0631	
		Part Code	Qty	Part Code	Qty	Part Code	Qty
1	Top Cover Plate	01259051	1	01259051	1	01259051	1
2	Hook	02112446	4	02112446	4	02112446	4
3	Seal of Left Side Plate	01499051	1	01499051	1	01499051	1
4	Seal of Connection Pipe	01499053	1	01499053	1	01499053	1
5	Electric cover	01412459	1	01412459	1	01412459	1
6	Main Board	30226088	1	30226088	1	30226088	1
7	Electric Box Sub-Assy	01408781	1	01408781	1	01408781	1
8	Capacitor	33010089	1	33010089	1	33010027	1
9	Transformer	43110251	1	43110251	1	43110251	1
10	Left Side Plate Assy	01308787	1	01308787	1	01308787	1
11	Left Support of Evaporator	01078774	1	01078774	1	01078774	1
12	Evaporator Assy	0102412401	1	0102412401	1	0102412602	1
13	Fan Motor Holder	01339095	1	01339095	1	01339095	1
14	Centrifugal Fan	10319051	2	10319051	2	10319051	2
15	Fan Motor	15019053	1	15019053	1	1501952207	1
16	Rear Volute Casing	22202029	2	22202029	2	22202029	2
17	Front Volute Casing	22202030	2	22202030	2	22202030	2
18	Filter Sub-Assy	11725201	1	11725201	1	11725201	1
19	Bottom Cover Assy	01259054	1	01259054	1	01259054	1
20	Water Tray Assy	01279051	1	01279051	1	01279051	1
21	Right Side Plate Assy	01309054	1	01309054	1	01309054	1
22	Right Evaporator Support	01079056	1	01079056	1	01079056	1
23	Upper Cover Plate of Evaporator	01078770	1	01078770	1	01078770	1
24	Side Plate of Air outlet	01498783	1	01498783	1	01498783	1
25	Clapboard	01238764	1	01238764	1	01238764	1
26	Connecting Wire (communicate)	400103953	1	400103953	1	400103953	1
27	Display Board	30296014	1	30296014	1	30296014	1
28	Cooling and Heating Mode Exchanger	00904114	1	00904114	1	00904114	1
29	4-way Valve	430004032	1	430004032	1	430004032	1
30	4-way Valve Fittings	430004009	1	430004009	1	430004009	1
31	Electronic Expansion Valve	07334191	1	07334191	1	07334191	1
32	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1	430001087	1

No.	Description	GMV-Rh32P/Na-K		GMV-Rh36P/Na-K	
		CM800N1000		EM800N0621	
		Part Code	Qty	Part Code	Qty
1	Top Cover Plate	01259051	1	01259051	1
2	Hook	02112446	4	02112446	4
3	Seal of Left Side Plate	01499051	1	01499051	1
4	Seal of Connection Pipe	01499053	1	01499053	1
5	Electric cover	01412459	1	01412459	1
6	Main Board	30226088	1	30226088	1
7	Electric Box Sub-Assy	01408781	1	01408781	1
8	Capacitor	33010027	1	33010027	1
9	Transformer	43110251	1	43110251	1
10	Left Side Plate Assy	01308787	1	01308787	1
11	Left Support of Evaporator	01078774	1	01078774	1
12	Evaporator Assy	0102412602	1	0102412602	1
13	Fan Motor Holder	01339095	1	01339095	1
14	Centrifugal Fan	10319051	2	10319051	2
15	Fan Motor	1501952207	1	1501952207	1
16	Rear Volute Casing	22202029	2	22202029	2
17	Front Volute Casing	22202030	2	22202030	2
18	Filter Sub-Assy	11725201	1	11725201	1
19	Bottom Cover Assy	01259054	1	01259054	1
20	Water Tray Assy	01279051	1	01279051	1
21	Right Side Plate Assy	01309054	1	01309054	1
22	Right Evaporator Support	01079056	1	01079056	1
23	Upper Cover Plate of Evaporator	01078770	1	01078770	1
24	Side Plate of Air outlet	01498783	1	01498783	1
25	Clapboard	01238764	1	01238764	1
26	Connecting Wire (communicate)	400103953	1	400103953	1
27	Display Board	30296014	1	30296014	1
28	Cooling and Heating Mode Exchanger	00904110	1	00904110	1
29	4-way Valve	430004032	1	430004032	1
30	4-way Valve Fittings	430004009	1	430004009	1
31	Electronic Expansion Valve	07334191	1	07334191	1
32	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1

(2) GMV-Rh40P/Na-K,GMV-Rh45P/Na-K,GMV-Rh50P/Na-K Exploded Views and parts list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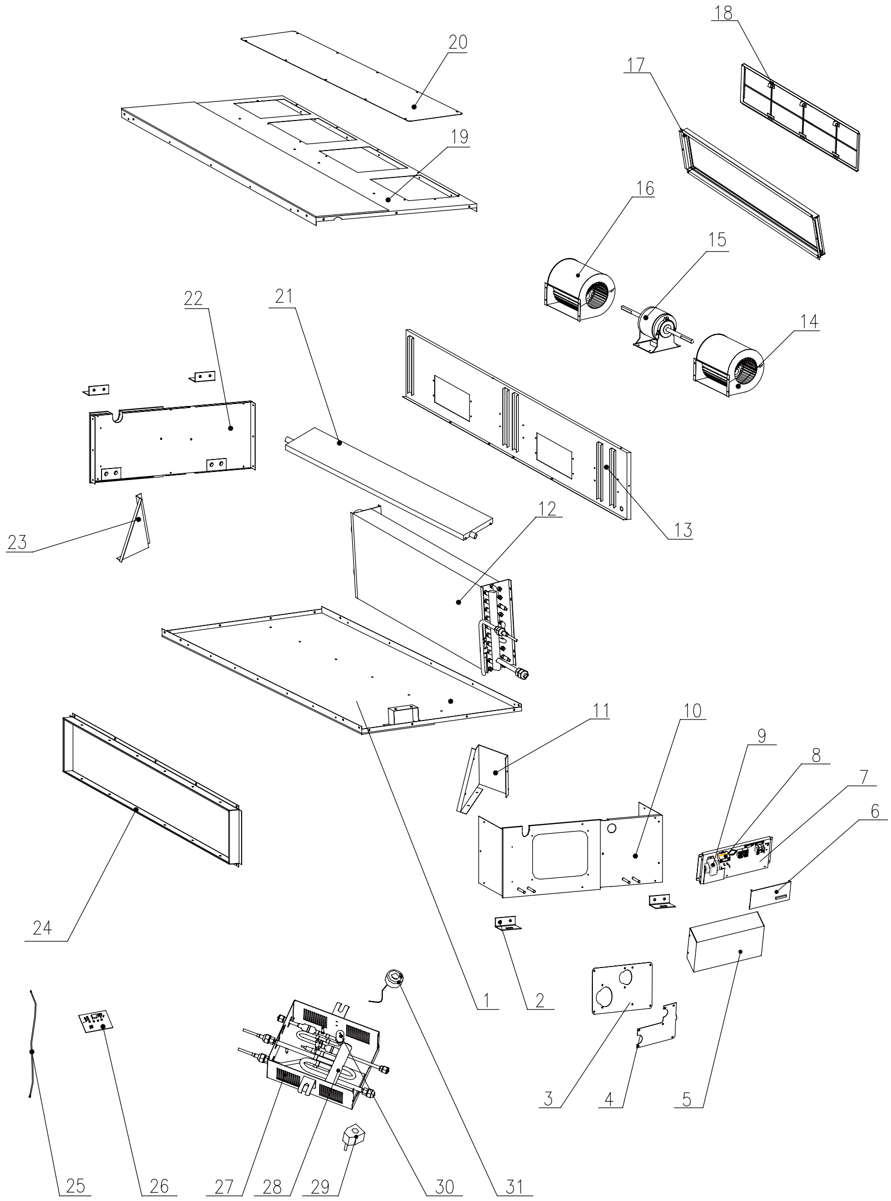
No.	Description	GMV-Rh40P/Na-K		GMV-Rh45P/Na-K	
		Product Code	CM800N1010	Product Code	EM800N0591
		Part Code	Qty	Part Code	Qty
1	Top Cover Sub-assy	01259064	1	01259064	1
2	Hook	02112446	2	02112446	2
3	Seal of Connection Pipe 2	01498644	1	01498644	1
4	Seal of Connection Pipe 1	01498604	1	01498604	1
5	Electric Box Assy	014046880	1	014046880	1
6	Left Side Plate Sub-assy	01308668	1	01308668	1
7	Left Support of Evaporator	01078629	1	01078629	1
8	Liquid-entered Pipe Sub-assy	04324409	1	04324409	1
9	Collect Gas Pipe Sub-assy	04674601	1	04674601	1
10	Evaporator Sub-assy	01038623	1	01038623	1
11	Fan Fixed Plate Sub-assy	01339058	1	01339058	1
12	Centrifugal fan	10319051	1	10319051	1
13	Air intake Sub-assy	01499061	1	01499061	1
14	Motor FG70B	15018322	1	15018322	1
15	Centrifugal fan	10319051	1	10319051	1
16	Bottom Cover	01258649	1	01258649	1
17	Cover of Air-in	01258650	1	01258650	1
18	Water Tray Sub-assy	01278633	1	01278633	1
19	Right Side Plate Sub-assy	01308670	1	01308670	1
20	Hook	02112446	2	02112446	2
21	Left Support of Evaporator	01078625	1	01078625	1
22	Air intake Sub-assy	01498641	1	01498641	1
23	Cooling and Heating Mode Exchanger	00904110	1	00904110	1
24	4-way Valve	430004032	1	430004032	1
25	4-way Valve Fittings	430004009	1	430004009	1
26	Electronic Expansion Valve	07334191	1	07334191	1
27	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1

No.	Description	GMV-Rh50P/Na-K	
		Product Code	EM800N0611
		Part Code	Qty
1	Top Cover Sub-assy	01259064	1
2	Hook	02112446	2
3	Seal of Connection Pipe 2	01498644	1
4	Seal of Connection Pipe 1	01498604	1
5	Electric Box Assy	014046880	1
6	Left Side Plate Sub-assy	01308668	1
7	Left Support of Evaporator	01078629	1
8	Liquid-entered Pipe Sub-assy	04324409	1
9	Collect Gas Pipe Sub-assy	04674601	1
10	Evaporator Sub-assy	01038623	1
11	Fan Fixed Plate Sub-assy	01339058	1
12	Centrifugal fan	10319051	1
13	Air intake Sub-assy	01499061	1
14	Motor FG70B	15018322	1
15	Centrifugal fan	10319051	1
16	Bottom Cover	01258649	1
17	Cover of Air-in	01258650	1
18	Water Tray Sub-assy	01278633	1
19	Right Side Plate Sub-assy	01308670	1
20	Hook	02112446	2
21	Left Support of Evaporator	01078625	1
22	Air intake Sub-assy	01498641	1
23	Cooling and Heating Mode Exchanger	00904110	1
24	4-way Valve	430004032	1
25	4-way Valve Fittings	430004009	1
26	Electronic Expansion Valve	07334191	1
27	Magnet Coil for Electronic Expansion Valve	430001087	1

(3) GMV-Rh56P/Na-K,GMV-Rh63P/Na-K,GMV-Rh71P/Na-K,GMV-Rh80P/Na-KExploded Views and parts list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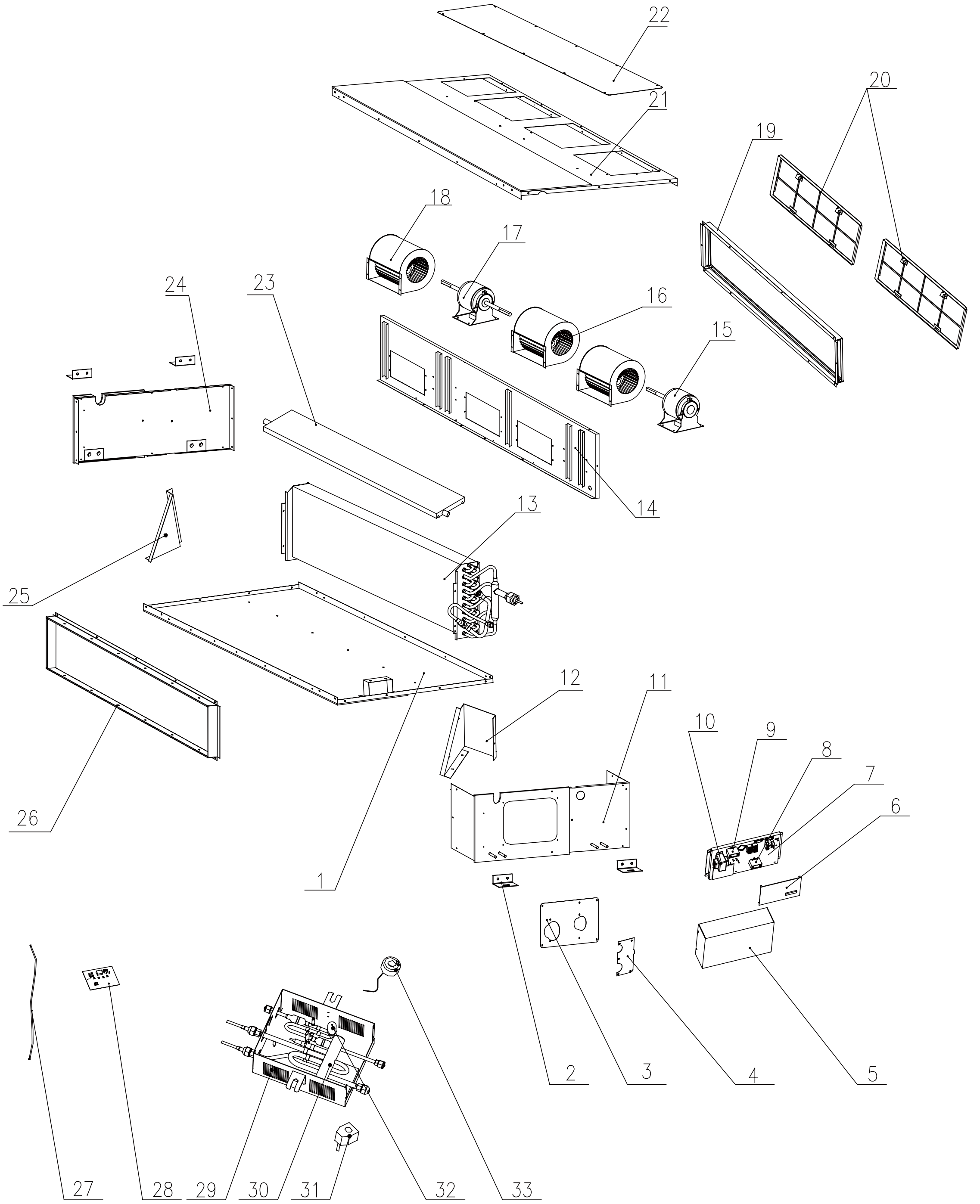
No.	Description	GMV-Rh56P/Na-K		GMV-Rh63P/Na-K	
		Product Code	EM800N0551	Product Code	CM800N1020
		Part Code	Qty	Part Code	Qty
1	Upper Cover Plate Assy	012524574	1	012524574	1
2	Hook	02112446	4	02112446	4
3	Seal Of Left Side Plate	01494101	1	01494101	1
4	Seal Of Connection Pipe Assy	01494102	1	01494102	1
5	Electric cover	01419126	1	01419126	1
6	Main Board	30226088	1	30226088	1
7	Electric Box Sub-Assy	01394193	1	01394193	1
8	Capacitor	33010010	1	33010010	1
9	Transformer	43110251	1	43110251	1
10	Left Side Plate Assy	01309057	1	01309057	1
11	Left Evaporator Support	01072483	1	01072483	1
12	Evaporator Assy	0102413101	1	0102413101	1
13	Fan Motor Mounting Plate Sub-Assy	0133909601	1	0133909601	1
14	Motor(left) SYP-160/200J	15012454	1	15012454	1
15	Fan Motor	15705203	1	15705203	1
16	Motor(right) SYP-160/200J	15012458	2	15012458	2
17	Border Plate Sub-Assy of Air Return End	02225257	1	02225257	1
18	Filter Sub-Assy	11725204	1	11725204	1
19	Bottom Cover Plate	01259001	1	01259001	1
20	Cover of Air Intake	01252463	1	01252463	1
21	Water Tray Assy	01272458	1	01272458	1
22	Right Side Plate	01302471	1	01302471	1
23	Right Support of Evaporator	01072482	1	01072482	1
24	Border Plate Assy of Air Return End	01492458	1	01492458	1
25	Connecting Wire (communicate)	400103953	1	400103953	1
26	Display Board	30296014	1	30296014	1
27	Cooling and Heating Mode Exchanger	00904109	1	00904109	1
28	4-way Valve	4300008201	1	4300008201	1
29	4-way Valve Fittings	430004009	1	430004009	1
30	Electronic Expansion Valve	07334193	1	07334193	1
31	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1

No.	Description	GMV-Rh71P/Na-K		GMV-Rh80P/Na-K	
		Product Code	EM800N0581	Product Code	EM800N0571
		Part Code	Qty	Part Code	Qty
1	Upper Cover Plate Assy	012524574	1	012524574	1
2	Hook	02112446	4	02112446	4
3	Seal Of Left Side Plate	01494101	1	01494101	1
4	Seal Of Connection Pipe Assy	01494102	1	01494102	1
5	Electric cover	01419126	1	01419126	1
6	Main Board	30226088	1	30226088	1
7	Electric Box Sub-Assy	01394193	1	01394193	1
8	Capacitor	33010010	1	33010010	1
9	Transformer	43110251	1	43110251	1
10	Left Side Plate Assy	01309057	1	01309057	1
11	Left Evaporator Support	01072483	1	01072483	1
12	Evaporator Assy	0102413101	1	0102413101	1
13	Fan Motor Mounting Plate Sub-Assy	0133909601	1	0133909601	1
14	Motor(left) SYP-160/200J	15012454	1	15012454	1
15	Fan Motor	15705203	1	15705203	1
16	Motor(right) SYP-160/200J	15012458	2	15012458	2
17	Border Plate Sub-Assy of Air Return End	02225257	1	02225257	1
18	Filter Sub-Assy	11725204	1	11725204	1
19	Bottom Cover Plate	01259001	1	01259001	1
20	Cover of Air Intake	01252463	1	01252463	1
21	Water Tray Assy	01272458	1	01272458	1
22	Right Side Plate	01302471	1	01302471	1
23	Right Support of Evaporator	01072482	1	01072482	1
24	Border Plate Assy of Air Return End	01492458	1	01492458	1
25	Connecting Wire (communicate)	400103953	1	400103953	1
26	Display Board	30296014	1	30296014	1
27	Cooling and Heating Mode Exchanger	00904109	1	00904109	1
28	4-way Valve	4300008201	1	4300008201	1
29	4-way Valve Fittings	430004009	1	430004009	1
30	Electronic Expansion Valve	07334193	1	07334193	1
31	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1

(4) GMV-Rh90P/Na-K,GMV-Rh100P/Na-K,GMV-Rh112P/Na-K,GMV-Rh125P/Na-K Exploded Views and parts list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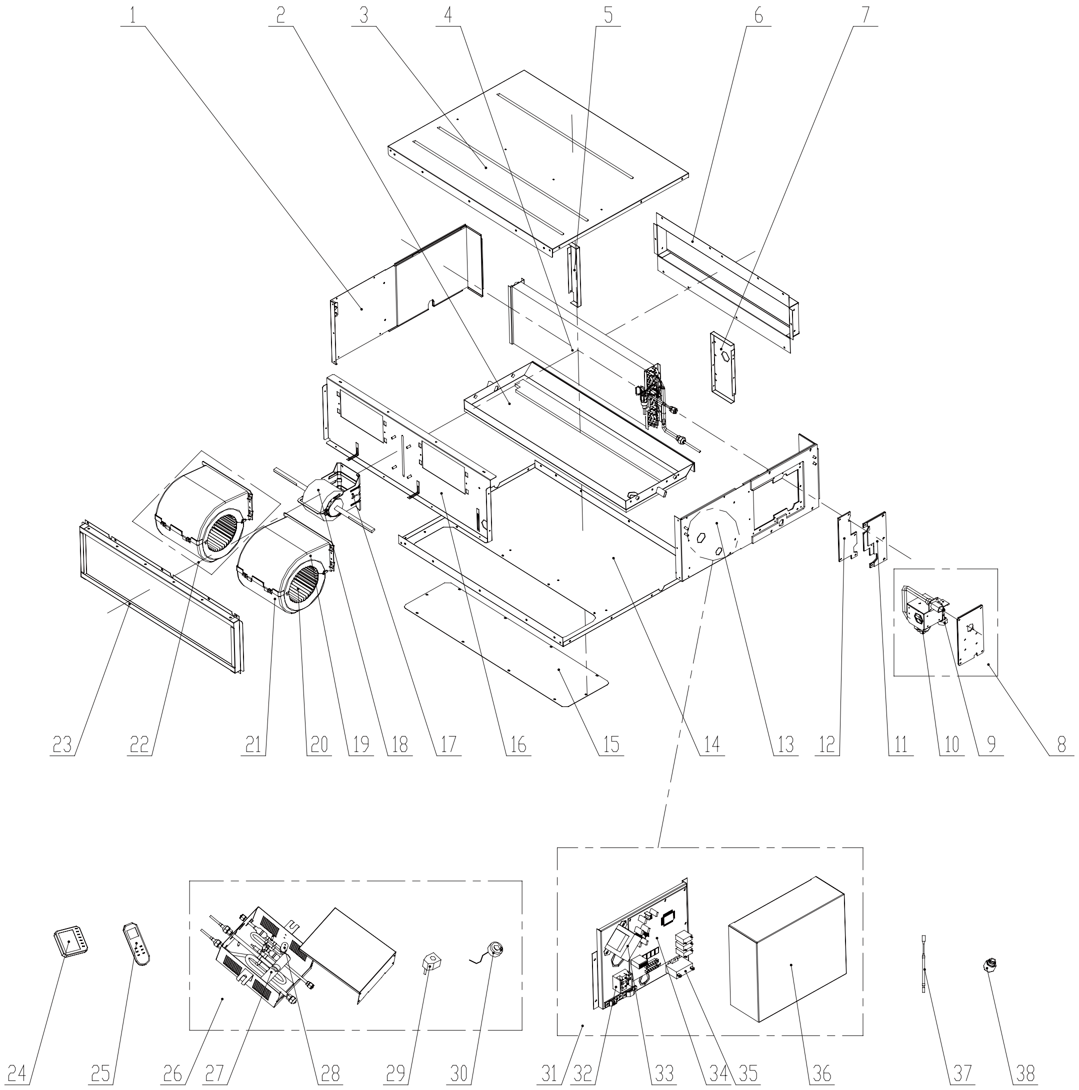
No.	Description	GMV-Rh90P/Na-K		GMV-Rh100P/Na-K	
		Product Code	EM800N0561	Product Code	CM800N1040
		Part Code	Qty	Part Code	Qty
1	Upper Cover Plate Sub-Assy	01264144	1	01264144	1
2	Hook	02118504	2	02118504	2
3	Seal Of Left Side Plate	01499058	1	01499058	1
4	Seal Of Connection Pipe Assy	01492465	1	01492465	1
5	Electric Box Cover	01419126	1	01419126	1
6	Main Board	30226088	1	30226088	1
7	Electric Box Sub-Assy	01394336	1	01394336	1
8	Capacitor	33010011	1	33010011	1
9	Capacitor	33010026	1	33010026	1
10	Transformer	43110251	1	43110251	1
11	Left Side Plate Assy	01309057	1	01309057	1
12	Left Evaporator Support	01804132	1	01804132	1
13	Evaporator Assy	01024193	1	01024193	1
14	Fan Motor Mounting Plate Sub-Assy	01339097	1	01339097	1
15	Fan Motor	15705205	1	15705205	1
16	Motor(left) SYP-160/200J	15012454	1	15012454	1
17	Fan Motor	15705203	1	15705203	1
18	Motor(right) SYP-160/200J	15012458	2	15012458	2
19	Border Plate Sub-Assy of Air Return End	01492463	1	01492463	1
20	Filter Sub-Assy	11725203	1	11725203	1
21	Bottom Cover Plate	01259078	1	01259078	1
22	Cover of Air Intake	01252474	1	01252474	1
23	Water Tray Assy	01272459	1	01272459	1
24	Right Side Plate	01302471	1	01302471	1
25	Right Support of Evaporator	01072482	1	01072482	1
26	Border Plate Assy of Air Return End	01492463	1	01492463	1
27	Connecting Wire (communicate)	400103953	1	400103953	1
28	Display Board	30296014	1	30296014	1
29	Cooling and Heating Mode Exchanger	00904108	1	00904108	1
30	4-way Valve	4300008201	1	4300008201	1
31	4-way Valve Fittings	430004009	1	430004009	1
32	Electronic Expansion Valve	07334195	1	07334195	1
33	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1

No.	Description	GMV-Rh112P/Na-K		GMV-Rh125P/Na-K	
		Product Code	EM800N0641	Product Code	CM800N1030
		Part Code	Qty	Part Code	Qty
1	Upper Cover Plate Sub-Assy	01264144	1	01264144	1
2	Hook	02118504	2	02118504	2
3	Seal Of Left Side Plate	01499058	1	01499058	1
4	Seal Of Connection Pipe Assy	01492465	1	01492465	1
5	Electric Box Cover	01419126	1	01419126	1
6	Main Board	30226088	1	30226088	1
7	Electric Box Sub-Assy	01394336	1	01394336	1
8	Capacitor	33010011	1	33010011	1
9	Capacitor	33010026	1	33010026	1
10	Transformer	43110251	1	43110251	1
11	Left Side Plate Assy	01309057	1	01309057	1
12	Left Evaporator Support	01804132	1	01804132	1
13	Evaporator Assy	01024193	1	01024193	1
14	Fan Motor Mounting Plate Sub-Assy	01339097	1	01339097	1
15	Fan Motor	15705205	1	15705205	1
16	Motor(left) SYP-160/200J	15012454	1	15012454	1
17	Fan Motor	15705203	1	15705203	1
18	Motor(right) SYP-160/200J	15012458	2	15012458	2
19	Border Plate Sub-Assy of Air Return End	01492463	1	01492463	1
20	Filter Sub-Assy	11725203	1	11725203	1
21	Bottom Cover Plate	01259078	1	01259078	1
22	Cover of Air Intake	01252474	1	01252474	1
23	Water Tray Assy	01272459	1	01272459	1
24	Right Side Plate	01302471	1	01302471	1
25	Right Support of Evaporator	01072482	1	01072482	1
26	Border Plate Assy of Air Return End	01492463	1	01492463	1
27	Connecting Wire (communicate)	400103953	1	400103953	1
28	Display Board	30296014	1	30296014	1
29	Cooling and Heating Mode Exchanger	00904108	1	00904108	1
30	4-way Valve	4300008201	1	4300008201	1
31	4-way Valve Fittings	430004009	1	430004009	1
32	Electronic Expansion Valve	07334195	1	07334195	1
33	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1

2) Concealed Duck High ESP Type indoor uint (Water Pump Integrated)

(1) GMV-Rh22PS/NaB-K, GMV-Rh28PS/NaB-K, GMV-Rh36PS/NaB-K Exploded Views and parts list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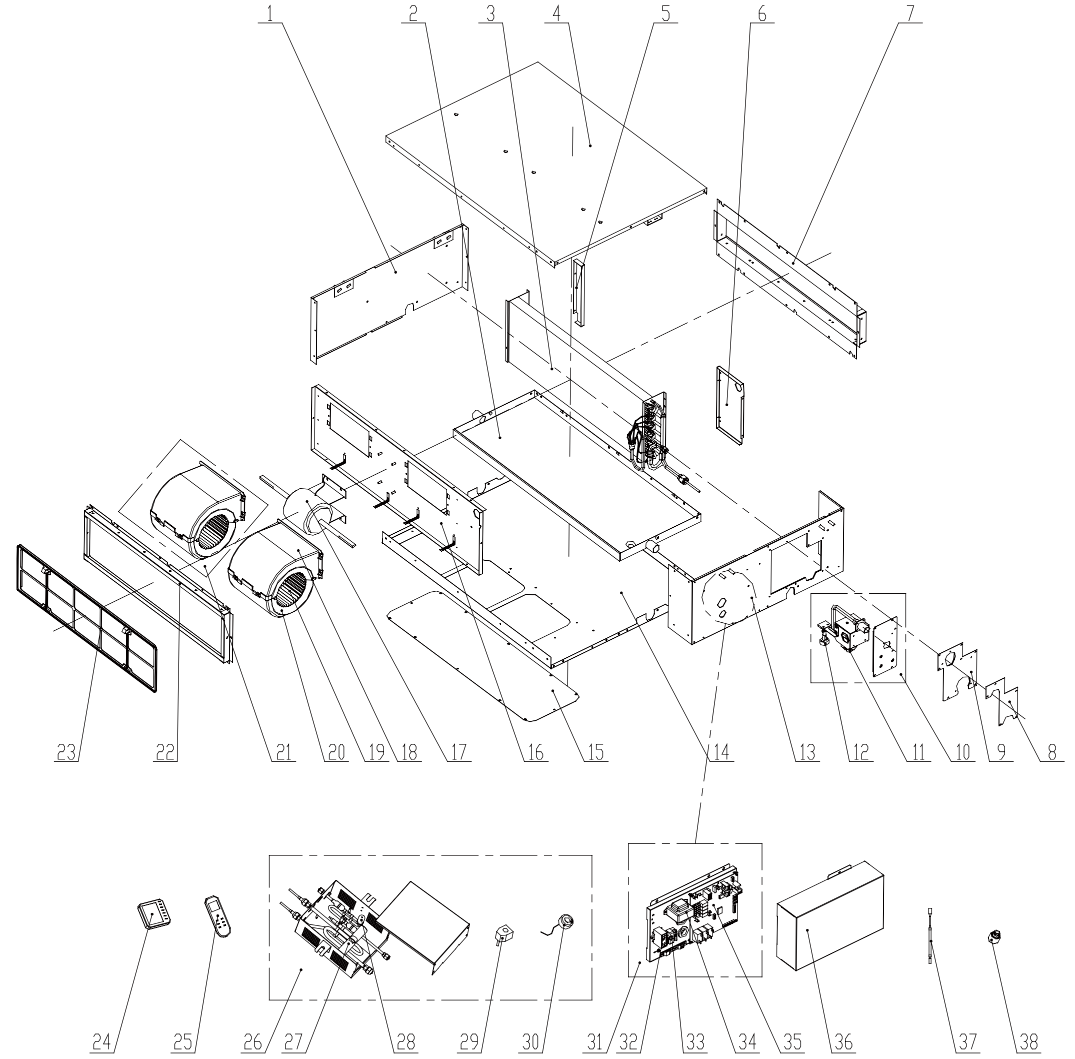
No.	Description	GMV-Rh22PS/NaB-K		GMV-Rh28PS/NaB-K	
		Product Code	CM800N1050	Product Code	CM800N1060
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01314175	1	01314175	1
2	Water Tray Assy	01284153	1	01284153	1
3	Top Cover Assy	01264176	1	01264176	1
4	Evaporator Assy	01024272	1	01024273	1
5	Right Evaporator Support	01094121	1	01094121	1
6	Air intake side-board Sub-assy	01494118	1	01494118	1
7	Left Evaporator Support	01094122	1	01094122	1
8	Water Pump Assy	15404117	1	15404117	1
9	Water Pump	43138220	1	43138220	1
10	Water Level Switch	45010201	1	45010201	1
11	Seal Of Left Side Plate Sub-Assy	01494115	1	01494115	1
12	Seal Of Connection Pipe Sub-Assy	01494116	1	01494116	1
13	Left Side Plate Assy	01314172	1	01314172	1
14	Lower Cover Plate Sub-Assy	01264178	1	01264178	1
15	Cover Of Air-In	01259056	1	01259056	1
16	Fan Motor Mounting Plate Sub-Assy	01324341	1	01324341	1
17	Fan Motor Supporter	01806414	1	01806414	1
18	Fan Motor	1570520103	1	1570520201	1
19	Front Volute Casing	22202030	2	22202030	2
20	Centrifugal Fan	10319051	2	10319051	2
21	Rear Volute Casing	22202029	2	22202029	2
22	Motor Sub-Assy	150024011	2	150024011	2
23	Air intake side-board Sub-assy	02225234	1	02225234	1
24	Display Board	30296014	1	30296014	1
25	Remote Controller	305125063	1	305125063	1
26	Heat-cold converter	00904114	1	00904114	1
27	4-way Valve	430004032	1	430004032	1
28	Electronic Expansion Valve	07334191	1	07334191	1
29	Magnet Coil	430004009	1	430004009	1
30	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
31	Electric Box Assy	01395109	1	01395109	1
32	Terminal Board	42011106	1	42011106	1
33	Transformer	43110237	1	43110237	1
34	Main Board	30226223	1	30226223	1
35	Capacitor CBB61	33010027	1	33010027	1
36	Electric Box Cover	01424319	1	01424319	1
37	Sensor sub-assy	39008026	1	39008026	1
38	Choke Plug of Drain Pipe	76712455	2	76712455	2

No.	Description	GMV-Rh36PS/NaB-K	
		Product Code	CM800N1070
		Part Code	Qty
1	Right Side Plate Assy	01314175	1
2	Water Tray Assy	01284153	1
3	Top Cover Assy	01264176	1
4	Evaporator Assy	01024271	1
5	Right Evaporator Support	01094121	1
6	Air intake side-board Sub-assy	01494118	1
7	Left Evaporator Support	01094122	1
8	Water Pump Assy	15404117	1
9	Water Pump	43138220	1
10	Water Level Switch	45010201	1
11	Seal Of Left Side Plate Sub-Assy	01494115	1
12	Seal Of Connection Pipe Sub-Assy	01494116	1
13	Left Side Plate Assy	01314172	1
14	Lower Cover Plate Sub-Assy	01264178	1
15	Cover Of Air-In	01259056	1
16	Fan Motor Mounting Plate Sub-Assy	01324341	1
17	Fan Motor Supporter	01806414	1
18	Fan Motor	1570520201	1
19	Front Volute Casing	22202030	2
20	Centrifugal Fan	10319051	2
21	Rear Volute Casing	22202029	2
22	Motor Sub-Assy	150024011	2
23	Air intake side-board Sub-assy	02225234	1
24	Display Board	30296014	1
25	Remote Controller	305125063	1
26	Heat-cold converter	00904114	1
27	4-way Valve	430004032	1
28	Electronic Expansion Valve	07334191	1
29	Magnet Coil	430004009	1
30	Magnet Coil for Electronic Expansion Valve	430001087	1
31	Electric Box Assy	01395109	1
32	Terminal Board	42011106	1
33	Transformer	43110237	1
34	Main Board	30226223	1
35	Capacitor CBB61	33010027	1
36	Electric Box Cover	01424319	1
37	Sensor sub-assy	39008026	1
38	Choke Plug of Drain Pipe	76712455	2

(2) GMV-Rh45PS/NaB-K Exploded Views and parts list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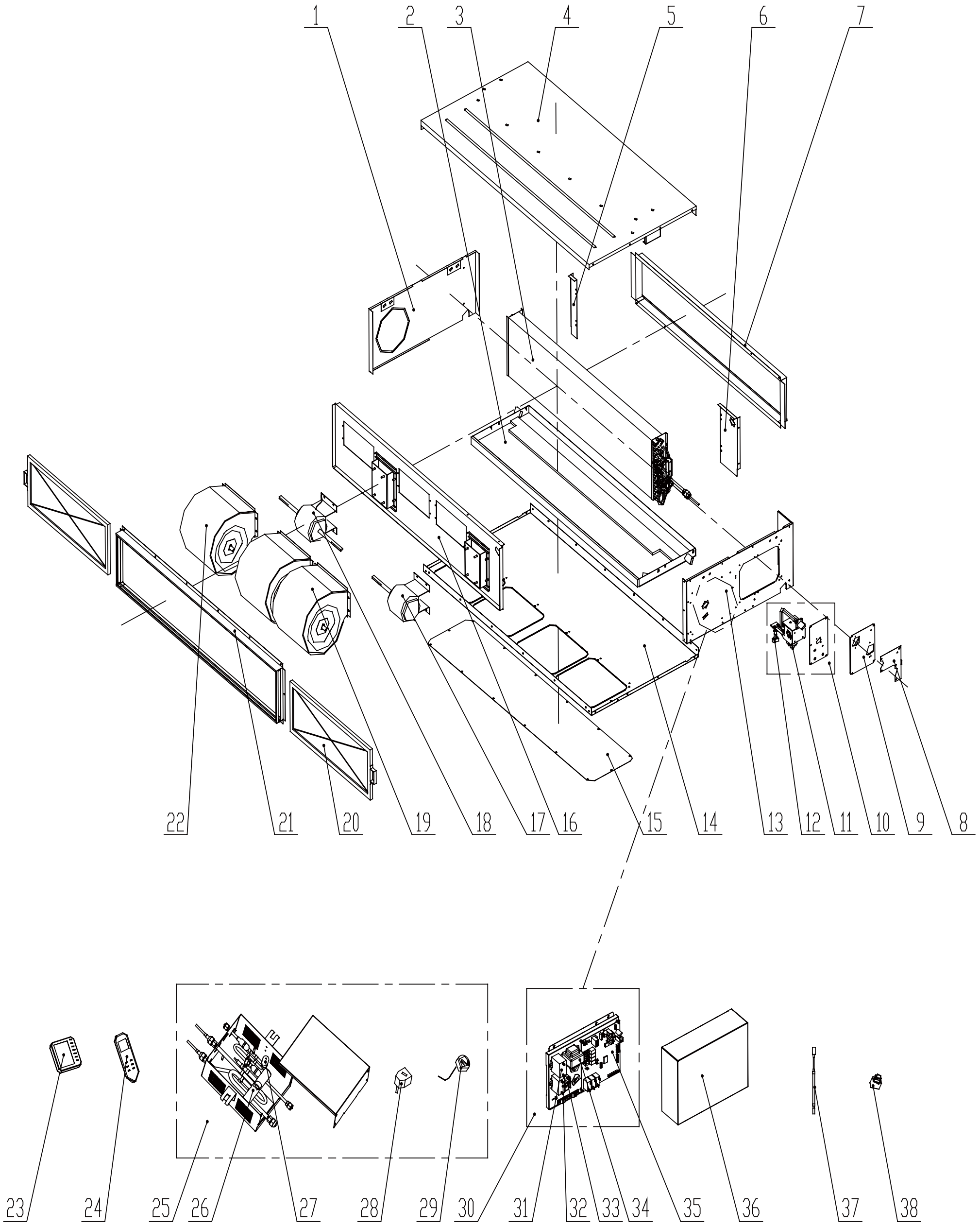
No.	Description	GMV-Rh45PS/NaB-K	
		Product Code	CM800N1080
		Part Code	Qty
1	Right Side Plate Assy	01308670	1
2	Water Tray Assy	01284166	1
3	Evaporator Assy	01024277	1
4	Top Cover Board Sub-assy	01259064	1
5	Right Support of Evaporator	01078625	1
6	Left Evaporator Support Sub-assy	01805280	1
7	Return air frame sub-assy	01498641	1
8	Seal Of Connection Pipe	01498640	1
9	Seal Of Left Side Plate Sub-Assy	01494128	1
10	Water Pump Assy	15404121	1
11	Water Pump	43138220	1
12	Water Level Switch	45010201	1
13	Left Side Plate Assy	01314229	1
14	Bottom Cover	01265296	1
15	Cover Of Air-In	01258650	1
16	Fan Motor Mounting Plate Sub-Assy	01339058	1
17	Fan Motor	1501832202	1
18	Front Volute Casing	22202030	2
19	Centrifugal Fan	10319051	2
20	Rear Volute Casing	22202029	2
21	Motor Sub-Assy	15002401	2
22	Air intake side-board Sub-assy	02225234	1
23	Filter	11725202	1
24	Display Board	30296014	1
25	Remote Controller	305125063	1
26	Heat-cold converter	00904110	1
27	4-way Valve	430004032	1
28	Electronic Expansion Valve	07334191	1
29	Magnet Coil	430004009	1
30	Magnet Coil for Electronic Expansion Valve	430001087	1
31	Electric Box Assy	01395110	1
32	Capacitor CBB61	33010010	1
33	Terminal Board	42011106	1
34	Transformer	43110237	1
35	Main Board	30226223	1
36	Electric Box Cover	01425249	1
37	Sensor sub-assy	39004167	1
38	Choke Plug of Drain Pipe	76712454	2

(3) GMV-Rh56PS/NaB-K, GMV-Rh71PS/NaB-K Exploded Views and parts list

No.	Description	GMV-Rh56PS/NaB-K		GMV-Rh71PS/NaB-K	
		Product Code	CM800N1090	Product Code	CM800N1100
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01308679	1	01308679	1
2	Water Tray Assy	01284163	1	01284163	1
3	Evaporator Assy	01024276	1	01024276	1
4	Top Cover Board Sub-assy	01258652	1	01258652	1
5	Right Support of Evaporator	01078604	1	01078604	1
6	Left Evaporator Support Sub-Assy	01805279	1	01805279	1
7	Air Outlet Sub-Assy	01498612	1	01498612	1
8	Seal Of Connection Pipe	01494129	1	01494129	1
9	Seal Of Left Side Plate Sub-Assy	01494131	1	01494131	1
10	Water Pump Assy	15404119	1	15404119	1
11	Water Pump	43138220	1	43138220	1
12	Water Level Switch	45010201	1	45010201	1
13	Left Side Plate Assy	01314225	1	01314225	1
14	Bottom Cover Plate Assy	01258612	1	01258612	1
15	Cover Of Air-In	01258614	1	01258614	1
16	Fan Motor Mounting Plate Sub-Assy	01324350	1	01324350	1
17	Fan Motor	1570521101	1	1570521101	1
18	Motor	15018603	1	15018603	1
19	Filter Sub-Assy	11129066	1	11129066	1
20	Motor	15018604	1	15018604	1
21	Air intake side-board Sub-assy	01499074	1	01499074	1
22	Filter Sub-Assy	11129067	1	11129067	1
23	Display Board	30296014	1	30296014	1
24	Remote Controller	305125063	1	305125063	1
25	Heat-cold converter	00904109	1	00904109	1
26	4-way Valve	4300008201	1	4300008201	1
27	Electronic Expansion Valve	07334193	1	07334193	1
28	Magnet Coil	430004009	1	430004009	1
29	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
30	Electric Box Assy	01395111	1	01395111	1
31	Capacitor CBB61	33010014	1	33010014	1
32	Terminal Board	42011106	1	42011106	1
33	Transformer	43110239	1	43110239	1
34	Main Board	30226223	1	30226223	1
35	Electric Box Cover	01425249	1	01425249	1
36	Sensor sub-assy	39004167	1	39004167	1
37	Choke Plug of Drain Pipe	76712454	2	76712454	2

(4) GMV-Rh90PS/NaB-K, GMV-Rh112PS/NaB-K Exploded Views and parts list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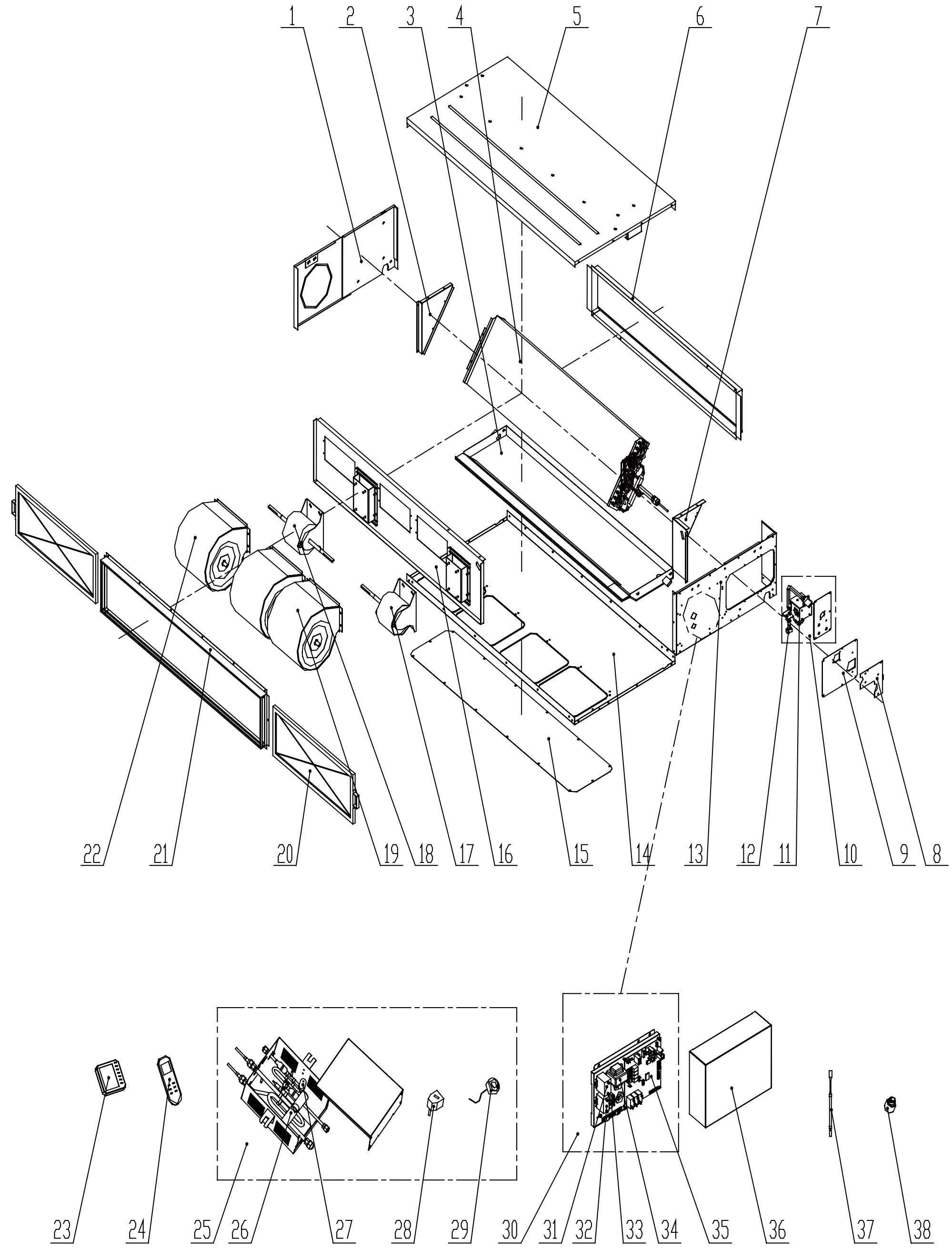
No.	Description	GMV-Rh90PS/NaB-K,		GMV-Rh112PS/NaB-K	
		Product Code	CM800N1110	Product Code	CM800N1120
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01308679	1	01308679	1
2	Water Tray Assy	01284160	1	01284160	1
3	Evaporator Assy	01024275	1	01024275	1
4	Top Cover Board Assy	01258607	1	01258607	1
5	Right Support of Evaporator	01078604	1	01078604	1
6	Left Evaporator Support Sub-Assy	01805279	1	01805279	1
7	Air Outlet Side Board assy	01498608	1	01498608	1
8	Seal Of Connection Pipe	01494123	1	01494123	1
9	Seal Of Left Side Plate Sub-Assy	01494124	1	01494124	1
10	Water Pump Assy	15404119	1	15404119	1
11	Water Pump	43138220	1	43138220	1
12	Water Level Switch	45010201	1	45010201	1
13	Left Side Plate Assy	01314225	1	01314225	1
14	Bottom Cover Plate Assy	01258603	1	01258603	1
15	Cover Of Air-In	01258602	1	01258602	1
16	Fan Motor Mounting Plate Sub-Assy	01324356	1	01324356	1
17	Fan Motor	1570521201	1	1570521201	1
18	Fan Motor	1570521101	1	1570521101	1
19	Motor	15018603	2	15018603	2
20	Filter Sub-Assy	07210028	1	07210028	1
21	Air intake side-board Sub-assy	01375221	1	01375221	1
22	Motor	15018604	1	15018604	1
23	Display Board	30296014	1	30296014	1
24	Remote Controller	305125063	1	305125063	1
25	Heat-cold converter	00904108	1	00904108	1
26	4-way Valve	4300008201	1	4300008201	1
27	Electronic Expansion Valve	07334195	1	07334195	1
28	Magnet Coil	430004009	1	430004009	1
29	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1
30	Electric Box Assy	01395112	1	01395112	1
31	Capacitor CBB61	33010014	1	33010014	1
32	Capacitor CBB61	33010064	1	33010064	1
33	Terminal Board	42011106	1	42011106	1
34	Transformer	43110239	1	43110239	1
35	Main Board	30226223	1	30226223	1
36	Electric Box Cover	01425249	1	01425249	1
37	Sensor sub-assy	39004167	1	39004167	1
38	Choke Plug of Drain Pipe	76712454	2	76712454	2

(5) GMV-Rh140PS/NaB-K Exploded Views and parts list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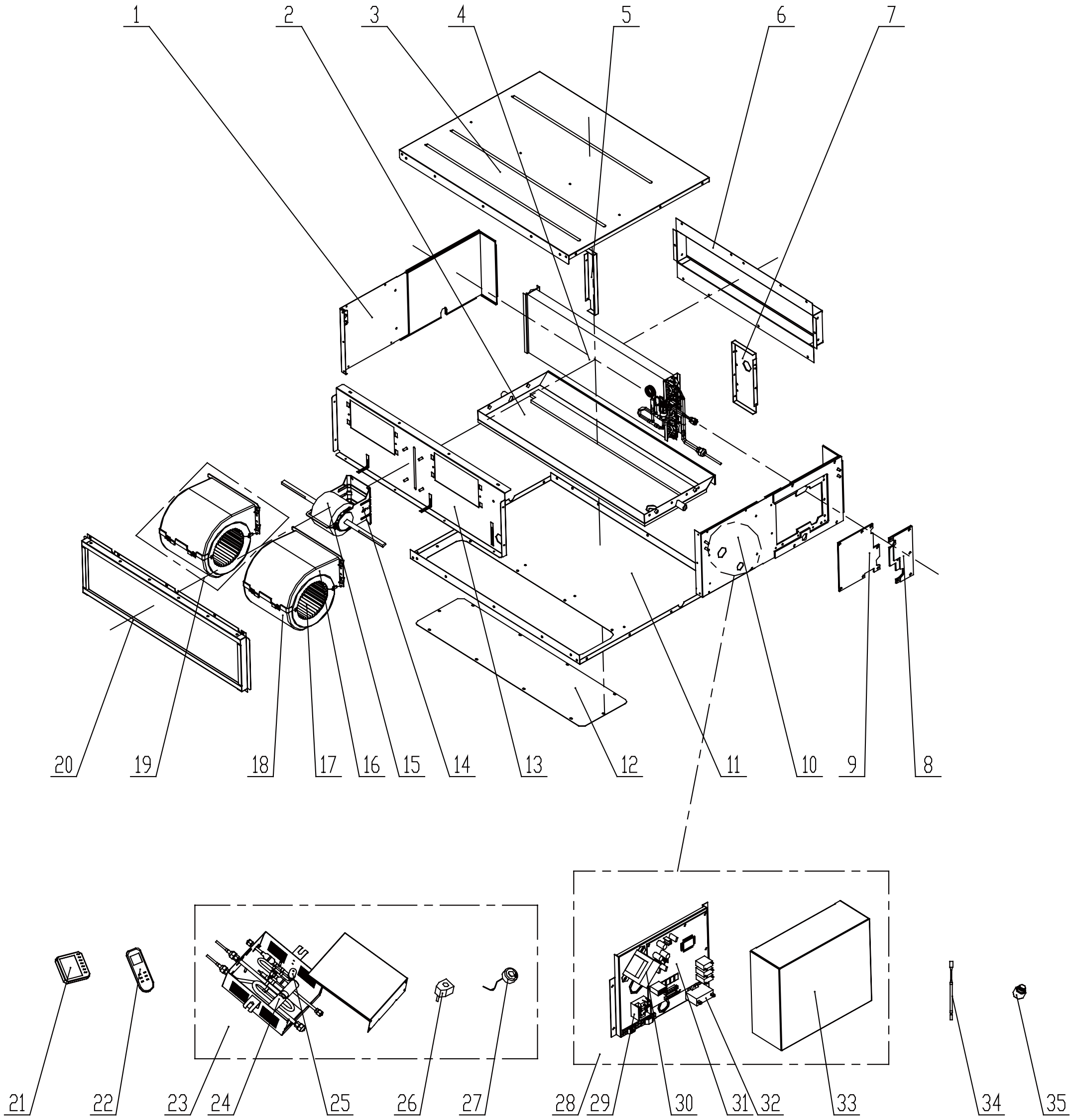
No.	Description	GMV-Rh140PS/NaB-K	
		Product Code	CM800N1130
		Part Code	Qty
1	Right Side Plate Assy	01308679	1
2	Right Support of Evaporator	01805221	1
3	Water Tray Assy	01284157	1
4	Evaporator Assy	01024274	1
5	Top Cover Board Assy	01264625	1
6	Air Outlet Side Board assy	01498608	1
7	Left Evaporator Support	01804703	1
8	Seal Of Connection Pipe	01494120	1
9	Seal Of Left Side Plate Sub-Assy	01494121	1
10	Water Pump Assy	15404118	1
11	Water Pump	43138220	1
12	Water Level Switch	450102012	1
13	Left Side Plate Assy	01314222	1
14	Bottom Cover Plate Assy	0125860301	1
15	Cover Of Air-In	01258602	1
16	Fan Motor Mounting Plate Sub-Assy	01325293	1
17	Fan Motor	1570521001	1
18	Fan Motor	1570520901	1
19	Motor	15018603	2
20	Filter Sub-Assy	11725205	1
21	Air intake side-board Sub-assy	01375221	1
22	Motor	15018604	1
23	Display Board	30296014	1
24	Remote Controller	305125063	1
25	Heat-cold converter	00904108	1
26	4-way Valve	4300008201	1
27	Electronic Expansion Valve	07334195	1
28	Magnet Coil	430004009	1
29	Magnet Coil for Electronic Expansion Valve	43000110	1
30	Electric Box Assy	01395113	1
31	Capacitor CBB61	33010056	1
32	Capacitor CBB61	33010064	1
33	Terminal Board	42011106	1
34	Transformer	43110239	1
35	Main Board	30226223	1
36	Electric Box Cover	01425249	1
37	Sensor sub-assy	39004167	1
38	Choke Plug of Drain Pipe	76712454	2

3) Concealed Duck High ESP Type indoor uint (No Water Pump Integrated)

(1) GMV-Rh22P/NaB-K, GMV-Rh28P/NaB-K, GMV-Rh36P/NaB-K Exploded Views and parts list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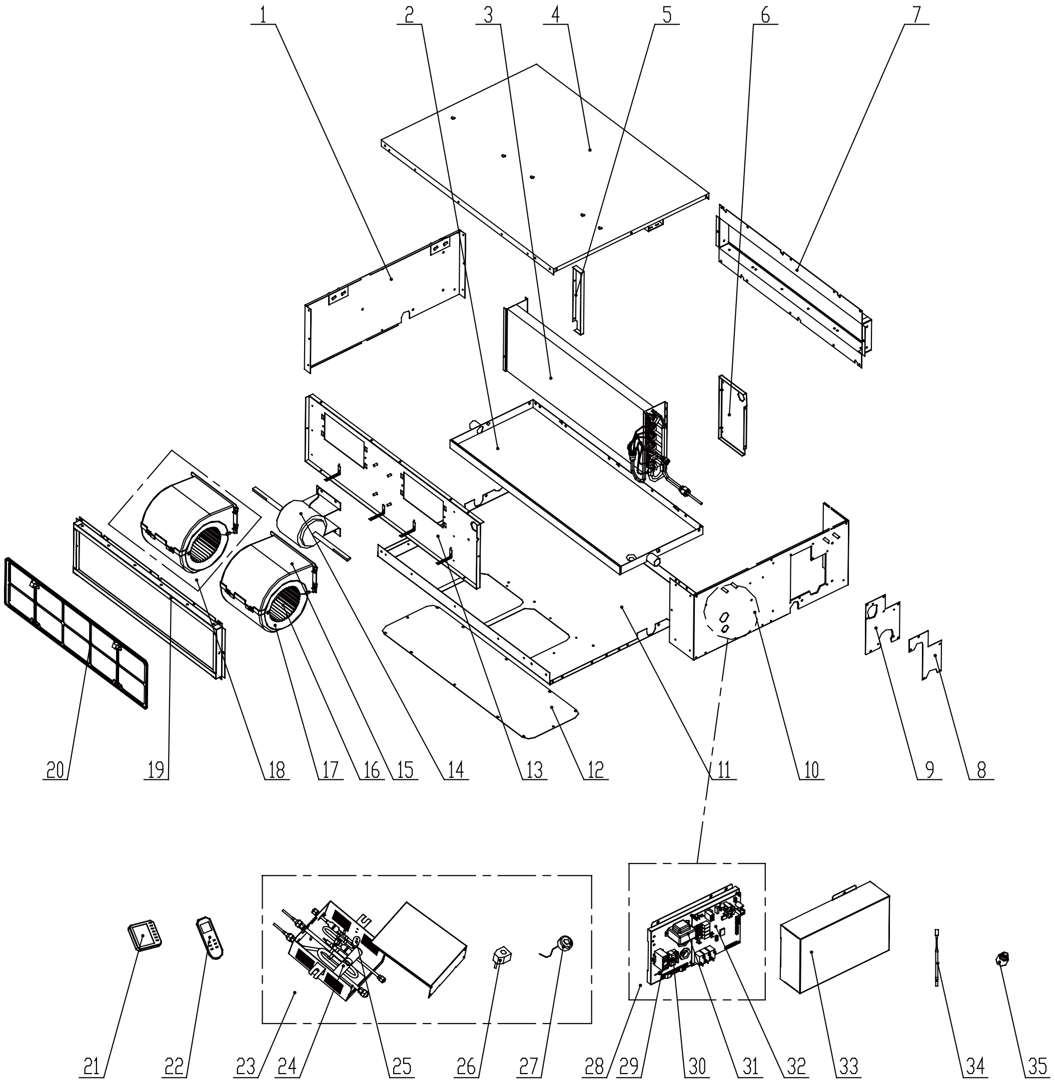
No.	Description	GMV-Rh22P/NaB-K		GMV-Rh28P/NaB-K	
		Product Code	CM800N1140	Product Code	CM800N1150
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01314175	1	01314175	1
2	Water Tray Assy	01284153	1	01284153	1
3	Top Cover Assy	01264176	1	01264176	1
4	Evaporator Assy	01024272	1	01024273	1
5	Right Evaporator Support	01094121	1	01094121	1
6	Air intake side-board Sub-assy	01494118	1	01494118	1
7	Left Evaporator Support	01094122	1	01094122	1
8	Seal Of Left Side Plate Sub-Assy	01494115	1	01494115	1
9	Seal Of Connection Pipe Sub-Assy	01494132	1	01494132	1
10	Left Side Plate Assy	01314172	1	01314172	1
11	Lower Cover Plate Sub-Assy	01264178	1	01264178	1
12	Cover Of Air-In	01259056	1	01259056	1
13	Fan Motor Mounting Plate Sub-Assy	01324341	1	01324341	1
14	Fan Motor Supporter	01806414	1	01806414	1
15	Fan Motor	1570520103	1	1570520201	1
16	Front Volute Casing	22202030	2	22202030	2
17	Centrifugal Fan	10319051	2	10319051	2
18	Rear Volute Casing	22202029	2	22202029	2
19	Motor Sub-Assy	150024011	2	150024011	2
20	Air intake side-board Sub-assy	02225234	1	02225234	1
21	Display Board	30296014	1	30296014	1
22	Remote Controller	305125063	1	305125063	1
23	Heat-cold converter	00904114	1	00904114	1
24	4-way Valve	430004032	1	430004032	1
25	Electronic Expansion Valve	07334191	1	07334191	1
26	Magnet Coil	430004009	1	430004009	1
27	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
28	Electric Box Assy	01395109	1	01395109	1
29	Terminal Board	42011106	1	42011106	1
30	Transformer	43110237	1	43110237	1
31	Main Board	30226223	1	30226223	1
32	Capacitor CBB61	33010027	1	33010027	1
33	Electric Box Cover	01424319	1	01424319	1
34	Sensor sub-assy	39008026	1	39008026	1
35	Choke Plug of Drain Pipe	76712455	1	76712455	1

No.	Description	GMV-Rh36P/NaB-K	
		Product Code	CM800N1160
		Part Code	Qty
1	Right Side Plate Assy	01314175	1
2	Water Tray Assy	01284153	1
3	Top Cover Assy	01264176	1
4	Evaporator Assy	01024273	1
5	Right Evaporator Support	01094121	1
6	Air intake side-board Sub-assy	01494118	1
7	Left Evaporator Support	01094122	1
8	Seal Of Left Side Plate Sub-Assy	01494115	1
9	Seal Of Connection Pipe Sub-Assy	01494132	1
10	Left Side Plate Assy	01314172	1
11	Lower Cover Plate Sub-Assy	01264178	1
12	Cover Of Air-In	01259056	1
13	Fan Motor Mounting Plate Sub-Assy	01324341	1
14	Fan Motor Supporter	01806414	1
15	Fan Motor	1570520201	1
16	Front Volute Casing	22202030	2
17	Centrifugal Fan	10319051	2
18	Rear Volute Casing	22202029	2
19	Motor Sub-Assy	150024011	2
20	Air intake side-board Sub-assy	02225234	1
21	Display Board	30296014	1
22	Remote Controller	305125063	1
23	Heat-cold converter	00904114	1
24	4-way Valve	430004032	1
25	Electronic Expansion Valve	07334191	1
26	Magnet Coil	430004009	1
27	Magnet Coil for Electronic Expansion Valve	430001087	1
28	Electric Box Assy	01395109	1
29	Terminal Board	42011106	1
30	Transformer	43110237	1
31	Main Board	30226223	1
32	Capacitor CBB61	33010027	1
33	Electric Box Cover	01424319	1
34	Sensor sub-assy	39008026	1
35	Choke Plug of Drain Pipe	76712455	1

(2) GMV-Rh45P/NaB-K Exploded Views and parts list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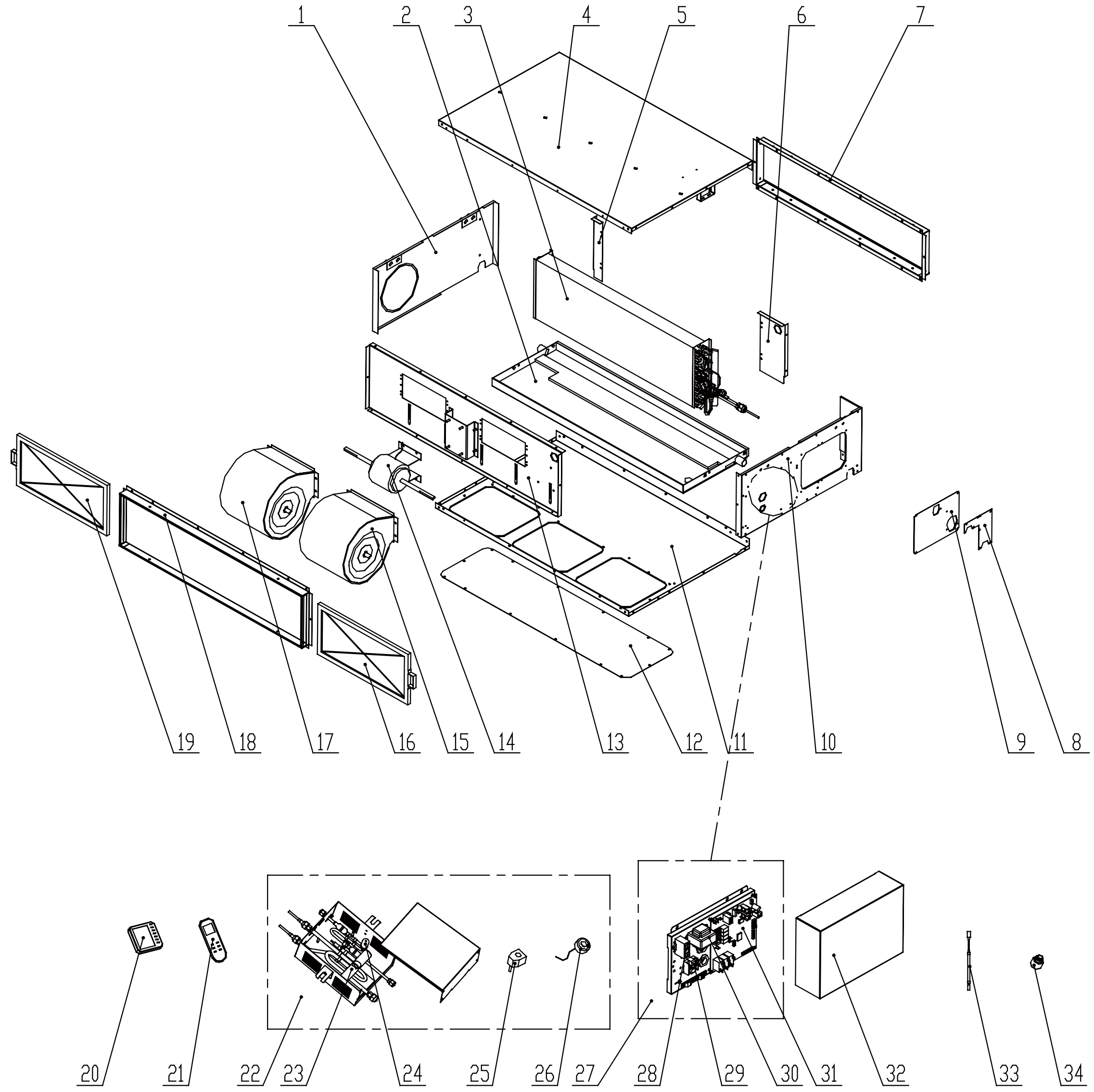
No.	Description	GMV-Rh45P/NaB-K	
		Product Code	CM800N1170
		Part Code	Qty
1	Right Side Plate Assy	01308670	1
2	Water Tray Assy	01284166	1
3	Evaporator Assy	01024277	1
4	Top Cover Board Sub-assy	01259064	1
5	Right Support of Evaporator	01078625	1
6	Left Evaporator Support Sub-assy	01805280	1
7	Return air frame sub-assy	01498641	1
8	Seal Of Connection Pipe	01498640	1
9	Seal Of Connection Pipe	01498644	1
10	Left Side Plate Sub-Assy	01315336	1
11	Bottom Cover	01265296	1
12	Cover Of Air-In	01258650	1
13	Fan Motor Mounting Plate Sub-Assy	01339058	1
14	Fan Motor	1501832202	1
15	Front Volute Casing	22202030	2
16	Centrifugal Fan	10319051	2
17	Rear Volute Casing	22202029	2
18	Motor Sub-Assy	15002401	2
19	Air intake side-board Sub-assy	02225234	1
20	Filter	11725202	1
21	Display Board	30296014	1
22	Remote Controller	305125063	1
23	Heat-cold converter	00904110	1
24	4-way Valve	430004032	1
25	Electronic Expansion Valve	07334191	1
26	Magnet Coil	430004009	1
27	Magnet Coil for Electronic Expansion Valve	430001087	1
28	Electric Box Assy	01395110	1
29	Capacitor CBB61	33010010	1
30	Terminal Board	42011106	1
31	Transformer	43110237	1
32	Main Board	30226223	1
33	Electric Box Cover	01425249	1
34	Sensor sub-assy	39004167	1
35	Choke Plug of Drain Pipe	76712454	1

(3) GMV-Rh56P/NaB-K, GMV-Rh71P/NaB-K Exploded Views and parts list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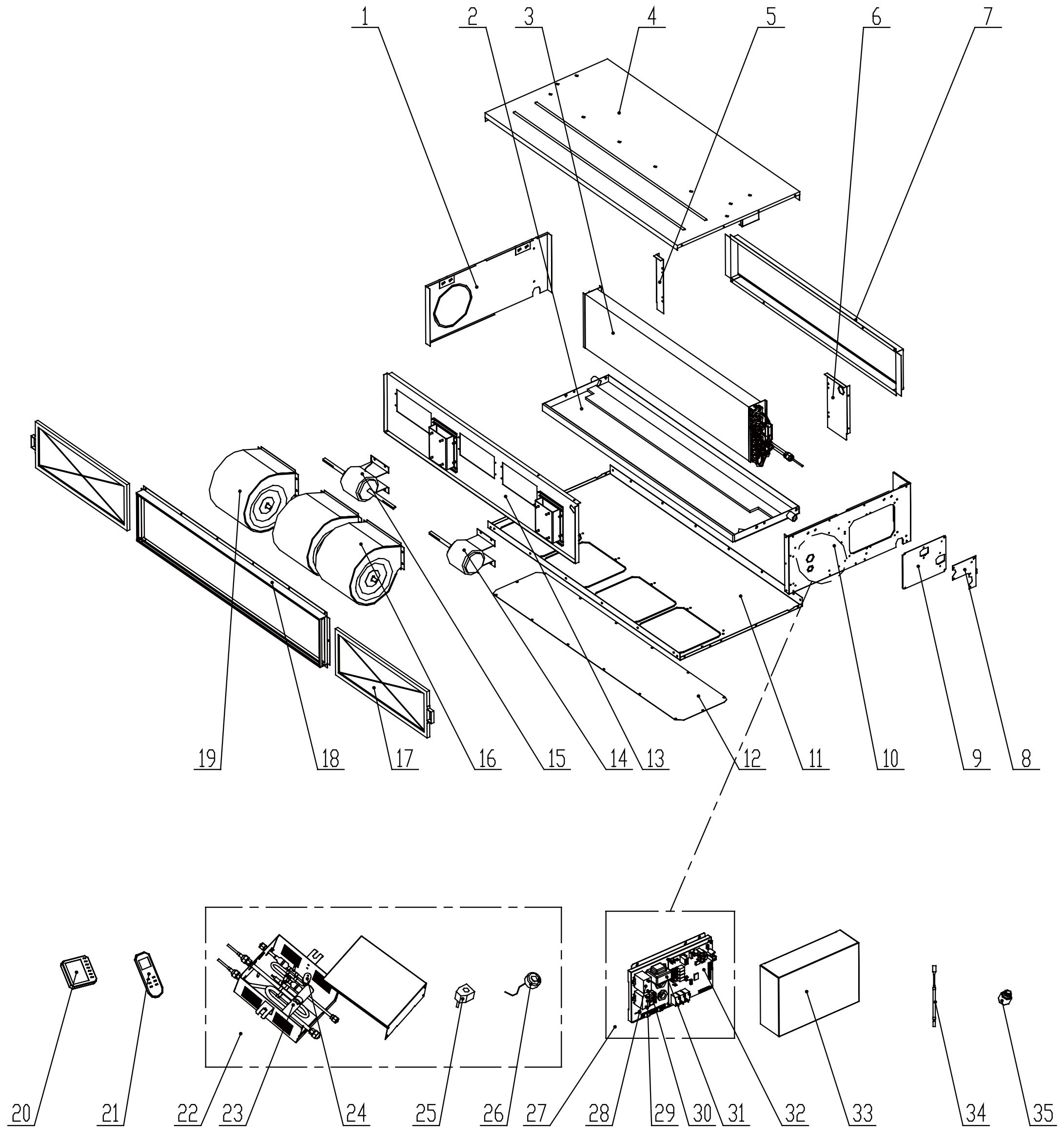
No.	Description	GMV-Rh56P/NaB-K		GMV-Rh71P/NaB-K	
		Product Code	CM800N1180	Product Code	CM800N1190
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01308679	1	01308679	1
2	Water Tray Assy	01284163	1	01284163	1
3	Evaporator Assy	01024276	1	01024276	1
4	Top Cover Board Sub-assy	01258652	1	01258652	1
5	Right Support of Evaporator	01078604	1	01078604	1
6	Left Evaporator Support Sub-Assy	01805279	1	01805279	1
7	Air Outlet Sub-Assy	01498612	1	01498612	1
8	Seal Of Connection Pipe	01498610	1	01498610	1
9	Seal Of Left Side Plate Sub-Assy	01308680	1	01308680	1
10	Left Side Plate Assy	01315255	1	01315255	1
11	Bottom Cover Plate Assy	01258612	1	01258612	1
12	Cover Of Air-In	01258614	1	01258614	1
13	Fan Motor Mounting Plate Sub-Assy	01324350	1	01324350	1
14	Fan Motor	1570521101	1	1570521101	1
15	Motor	15018603	1	15018603	1
16	Filter Sub-Assy	11129066	1	11129066	1
17	Motor	15018604	1	15018604	1
18	Air intake side-board Sub-assy	01499074	1	01499074	1
19	Filter Sub-Assy	11129067	1	11129067	1
20	Display Board	30296014	1	30296014	1
21	Remote Controller	305125063	1	305125063	1
22	Heat-cold converter	00904109	1	00904109	1
23	4-way Valve	4300008201	1	4300008201	1
24	Electronic Expansion Valve	07334193	1	07334193	1
25	Magnet Coil	430004009	1	430004009	1
26	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
27	Electric Box Assy	01395111	1	01395111	1
28	Capacitor CBB61	33010014	1	33010014	1
29	Terminal Board	42011106	1	42011106	1
30	Transformer	43110239	1	43110239	1
31	Main Board	30226223	1	30226223	1
32	Electric Box Cover	01425249	1	01425249	1
33	Sensor sub-assy	39004167	1	39004167	1
34	Choke Plug of Drain Pipe	76712454	1	76712454	1

(4) GMV-Rh90P/NaB-K, GMV-Rh112P/NaB-K Exploded Views and parts list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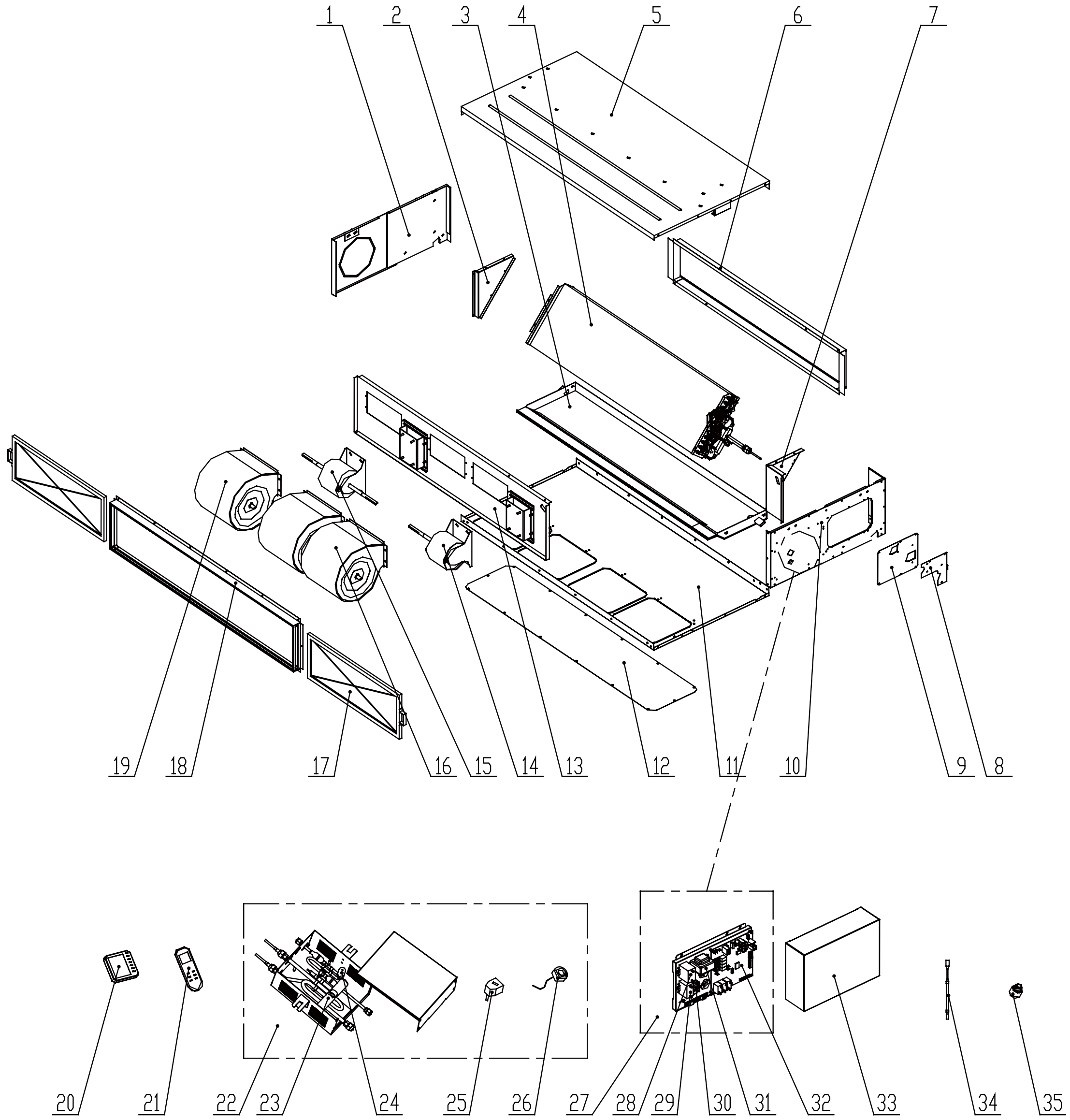
No.	Description	GMV-Rh90P/NaB-K		GMV-Rh112P/NaB-K	
		Product Code	CM800N1200	Product Code	CM800N1210
		Part Code	Qty	Part Code	Qty
1	Right Side Plate Assy	01308679	1	01308679	1
2	Water Tray Assy	01284160	1	01284160	1
3	Evaporator Assy	01024275	1	01024275	1
4	Top Cover Board Assy	01258607	1	01258607	1
5	Right Support of Evaporator	01078604	1	01078604	1
6	Left Evaporator Support Sub-Assy	01805279	1	01805279	1
7	Air Outlet Side Board assy	01498608	1	01498608	1
8	Seal Of Connection Pipe	01498601	1	01498601	1
9	Seal Of Left Side Plate Sub-Assy	01308672	1	01308672	1
10	Left Side Plate Assy	01315255	1	01315255	1
11	Bottom Cover Plate Assy	01258603	1	01258603	1
12	Cover Of Air-In	01258602	1	01258602	1
13	Fan Motor Mounting Plate Sub-Assy	01324356	1	01324356	1
14	Fan Motor	1570521201	1	1570521201	1
15	Fan Motor	1570521101	1	1570521101	1
16	Motor	15018603	2	15018603	2
17	Filter Sub-Assy	07210028	1	07210028	1
18	Air intake side-board Sub-assy	01375221	1	01375221	1
19	Motor	15018604	1	15018604	1
20	Display Board	30296014	1	30296014	1
21	Remote Controller	305125063	1	305125063	1
22	Heat-cold converter	00904108	1	00904108	1
23	4-way Valve	4300008201	1	4300008201	1
24	Electronic Expansion Valve	07334195	1	07334195	1
25	Magnet Coil	430004009	1	430004009	1
26	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1
27	Electric Box Assy	01395112	1	01395112	1
28	Capacitor CBB61	33010014	1	33010014	1
29	Capacitor CBB61	33010064	1	33010064	1
30	Terminal Board	42011106	1	42011106	1
31	Transformer	43110239	1	43110239	1
32	Main Board	30226223	1	30226223	1
33	Electric Box Cover	01425249	1	01425249	1
34	Sensor sub-assy	39004167	1	39004167	1
35	Choke Plug of Drain Pipe	76712454	1	76712454	1

(5) GMV-Rh140P/NaB-K Exploded Views and parts list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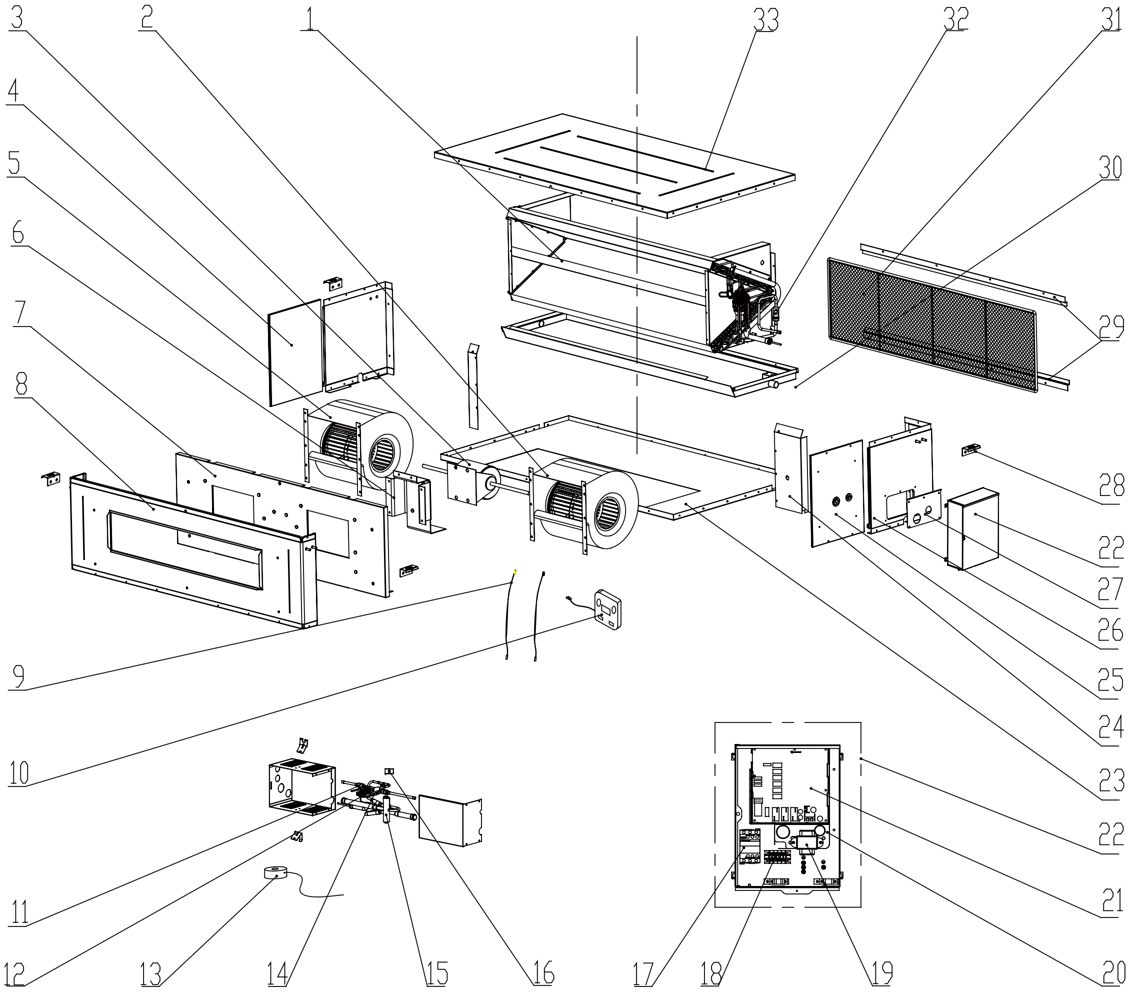
No.	Description	GMV-Rh140P/NaB-K	
		Product Code	CM800N1220
		Part Code	Qty
1	Right Side Plate Assy	01308679	1
2	Right Support of Evaporator	01805221	1
3	Water Tray Assy	01284157	1
4	Evaporator Assy	01024274	1
5	Top Cover Board Assy	01264625	1
6	Air Outlet Side Board assy	01498608	1
7	Left Evaporator Support	01804703	1
8	Seal Of Connection Pipe	01495213	1
9	Seal Of Left Side Plate Sub-Assy	01495212	1
10	Left Side Plate Assy	01315255	1
11	Bottom Cover Plate Assy	0125860301	1
12	Cover Of Air-In	01258602	1
13	Fan Motor Mounting Plate Sub-Assy	01325293	1
14	Fan Motor	1570521001	1
15	Fan Motor	1570520901	1
16	Motor	15018603	2
17	Filter Sub-Assy	11725205	1
18	Air intake side-board Sub-assy	01375221	1
19	Motor	15018604	1
20	Display Board	30296014	1
21	Remote Controller	305125063	1
22	Heat-cold converter	00904108	1
23	4-way Valve	4300008201	1
24	Electronic Expansion Valve	07334195	1
25	Magnet Coil	430004009	1
26	Magnet Coil for Electronic Expansion Valve	43000110	1
27	Electric Box Assy	01395113	1
28	Capacitor CBB61	33010056	1
29	Capacitor CBB61	33010064	1
30	Terminal Board	42011106	1
31	Transformer	43110239	1
32	Main Board	30226223	1
33	Electric Box Cover	01425249	1
34	Sensor sub-assy	39004167	1
35	Choke Plug of Drain Pipe	76712454	1

(6) GMV-Rh224P/NaB-M Exploded Views and parts list

No.	Description	GMV-Rh224P/NaB-M	
		Product Code	CM800N1240
		Part Code	Qty
1	Evaporator Assy	01024301	1
2	Fan	1570411801	1
3	Fan Motor	15705229	1
4	Left Side Plate Sub-Assy	01315378	1
5	Fan	15704118	1
6	Motor Support Sub-Assy	01804715	1
7	Fan Mounting Plate Assy	01324259	1
8	Front Side Plate Sub-Assy	01315374	1
9	Sensor Sub-assy	39008074	1
10	Display Board	30296014	1
11	Filter 2	07216221	2
12	Electronic Expansion Valve	07331139	1
13	Electric expand valve fitting	4304413203	1
14	One Way Valve	0733420001	1
15	4-way Valve	4300008201	1
16	Magnet Coil	430004009	1
17	AC Contactor	44010232	1
18	Terminal Board	420100071	1
19	Transformer	43110237	1
20	Electrical Retaining Plate	01845221	1
21	Main Board	30226223	1
22	Electric Box Assy	01395154	1
23	Bottom Cover Plate Assy	01265357	1
24	Cover seal	01345218	1
25	Right Side Plate Sub-Assy	01315378	1
26	Right Side Plate Assy	01314321	1
27	Baffle Assembly for Refrigerant Pipe	01494143	1
28	Hook	02112466	4
29	Filter Screen Slot	02284107	2
30	Filter Sub-Assy	11725211	2
31	Choke Plug of Water Pipe	76712454	1
32	Filter	07220016	1
33	Top Cover Board Assy	01265359	1

(7) GMV-Rh280P/NaB-M Exploded Views and parts list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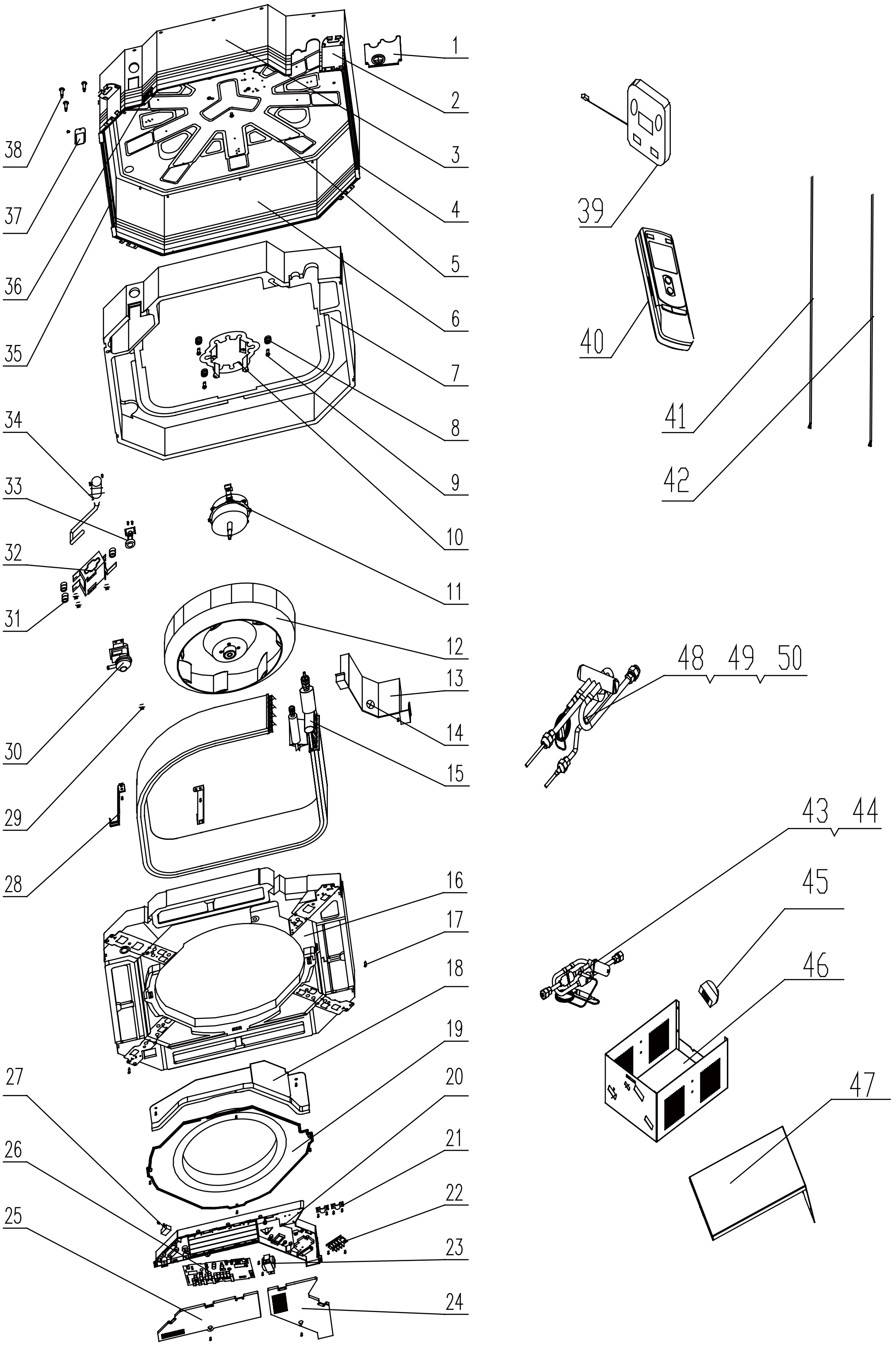
No.	Description	GMV-Rh280P/NaB-M	
		Product Code	CM800N1230
		Part Code	Qty
1	Evaporator Assy	01024301	1
2	Fan	1570411801	1
3	Fan Motor	15705229	1
4	Left Side Plate Sub-Assy	01314319	1
5	Fan	15704118	1
6	Motor Support Sub-Assy	01804715	1
7	Fan Mounting Plate Assy	01324363	1
8	Front Side Plate Sub-Assy	01314314	1
9	Sensor Sub-assy	39008074	1
10	Display Board	30296014	1
11	Filter 2	07216221	2
12	Electronic Expansion Valve	07331139	1
13	Electric expand valve fitting	4304413203	1
14	One Way Valve	0733420001	1
15	4-way Valve	4300008201	1
16	Magnet Coil	430004009	1
17	AC Contactor	44010232	1
18	Terminal Board	420100071	1
19	Transformer	43110237	1
20	Electrical Retaining Plate	01845221	1
21	Main Board	30226223	1
22	Electric Box Assy	01395154	1
23	Bottom Cover Plate Assy	01264213	1
24	Cover seal	01344113	1
25	Right Side Plate Sub-Assy	01314317	1
26	Right Side Plate Assy	01314312	1
27	Baffle Assembly for Refrigerant Pipe	01494709	1
28	Hook	02112466	4
29	Filter Screen Slot	02284105	2
30	Choke Plug of Water Pipe	76712454	1
31	Filter Sub-Assy	11724102	1
32	Filter	07220016	1
33	Top Cover Board Assy	01264215	1

4) Cassette type indoor unit

GMV-Rh28T/Na-K,GMV-Rh36T/Na-K,GMV-Rh45T/Na-K, GMV-Rh50T/Na-K Exploded Views and parts list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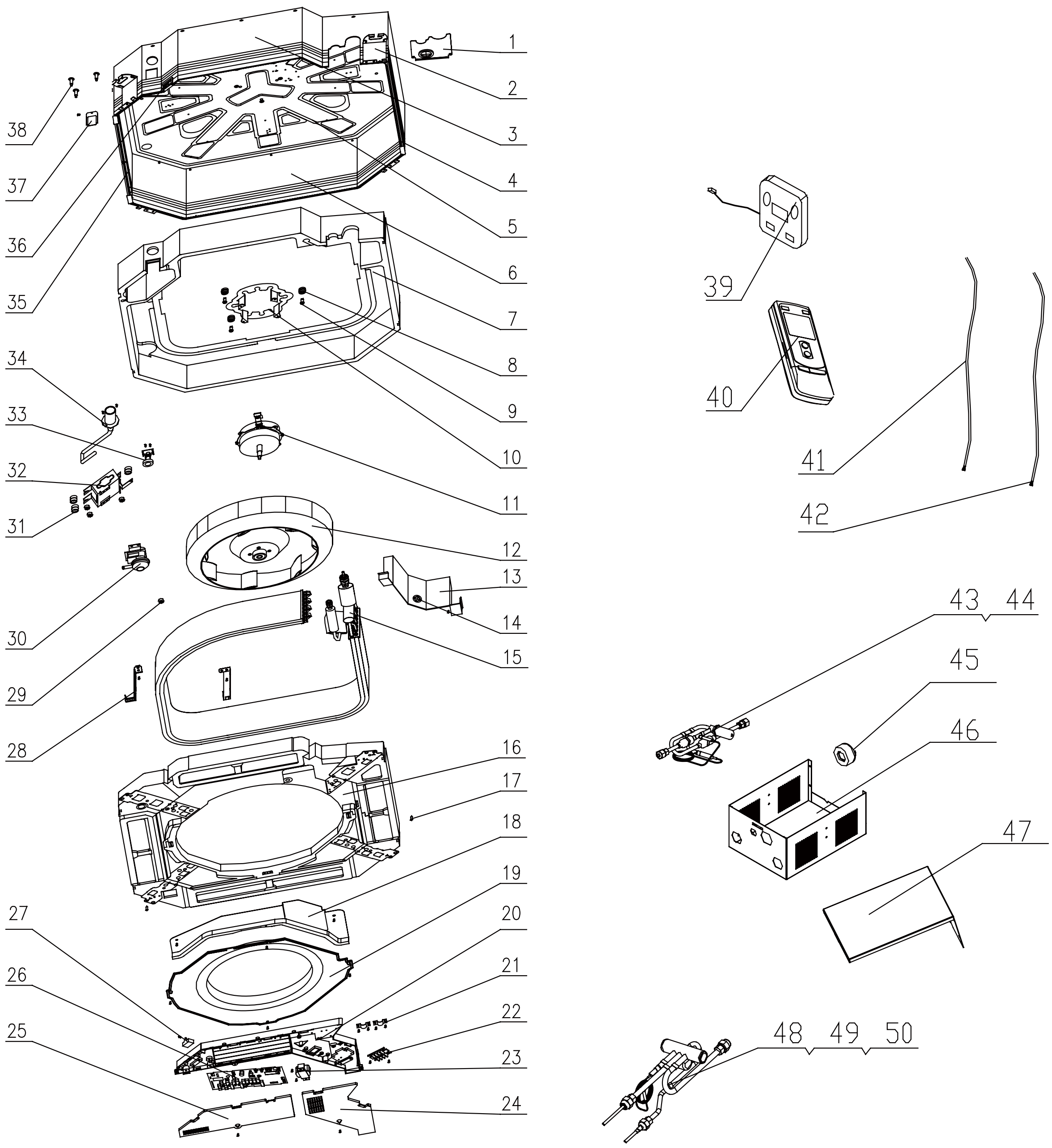
No	Description	GMV-Rh28T/Na-K		GMV-Rh36T/Na-K	
		Product Code	CM501N0131	Product Code	CM501N0151
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382710	1	01382710	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302717	1	01302717	1
4	Left Side Plate	01302740	1	01302740	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302719	1	01302719	1
7	Bottom Foam	52012716	1	52012716	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN35D-1	15704901	1	15704901	1
12	Centrifugal Fan	10312721	1	10312721	1
13	Evaporator Connection	01072004	1	01072004	1
14	Cable-cross Loop	76513101	1	76513101	1
15	Evaporator Plate	01024163	1	01004643	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010027	1	33010027	1
28	Evaporator Support	01072003	2	01072003	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332001	1	01332001	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05232721	1	05232721	1
35	Right Side Plate	01302710	1	01302710	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252710	1	01252710	1
38	Bolt	70212711	4	70212711	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334319	1	07334319	1
44	Electronic Expansion Valve	07334191	1	07334191	1
45	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144163	1	04144163	1
49	4-Way Vavle	430004032	1	430004032	1
50	4-way Valve Fittings	430004005	1	430004005	1

No	Description	GMV-Rh45T/Na-K		GMV-Rh50T/Na-K	
		Product Code	CM501N0111	Product Code	CM501N0161
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382710	1	01382710	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302717	1	01302717	1
4	Left Side Plate	01302740	1	01302740	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302719	1	01302719	1
7	Bottom Foam	52012716	1	52012716	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN35D-1	15704901	1	15704901	1
12	Centrifugal Fan	10312721	1	10312721	1
13	Evaporator Connection	01072004	1	01072004	1
14	Cable-cross Loop	76513101	1	76513101	1
15	Evaporator Plate	01004642	1	01004642	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010027	1	33010027	1
28	Evaporator Support	01072003	2	01072003	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332001	1	01332001	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05232721	1	05232721	1
35	Right Side Plate	01302710	1	01302710	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252710	1	01252710	1
38	Bolt	70212711	4	70212711	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334319	1	07334319	1
44	Electronic Expansion Valve	07334191	1	07334191	1
45	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144163	1	04144163	1
49	4-Way Vavle	430004032	1	430004032	1
50	4-way Valve Fittings	430004005	1	430004005	1

GMV-Rh56T/Na-K,GMV-Rh63T/Na-K,GMV-Rh71T/Na-K,GMV-Rh80T/Na-K Exploded Views and parts list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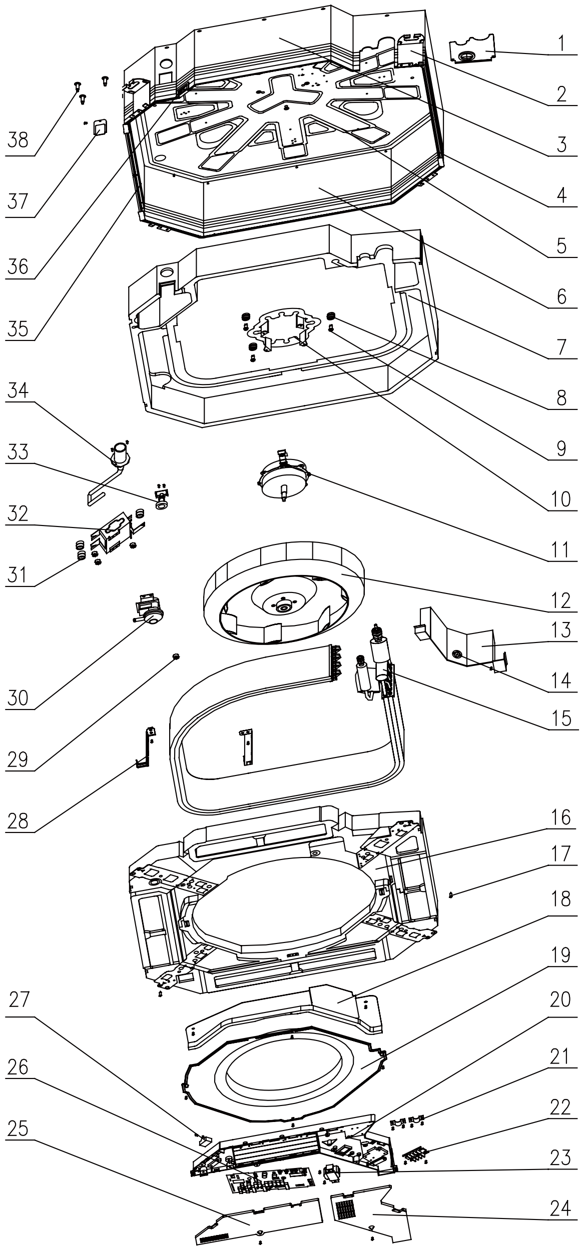
No	Description	GMV-Rh56T/Na-K		GMV-Rh63T/Na-K	
		Product Code	CM501N0171	Product Code	CM501N0181
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302718	1	01302718	1
4	Left Side Plate	01302715	1	01302715	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302714	1	01302714	1
7	Bottom Foam	52012711	1	52012711	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN35B-1	15704102	1	15704102	1
12	Centrifugal Fan	10312705	1	10312705	1
13	Evaporator Connection	01072710	1	01072710	1
14	Cable-cross Loop	76513101	1	76513101	1
15	Evaporator Plate	01004641	1	01004641	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010027	1	33010027	1
28	Evaporator Support	01072715	2	01072715	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332702	1	01332702	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05230026	1	05230026	1
35	Right Side Plate	01302716	1	01302716	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252711	1	01252711	1
38	Bolt	70212711	4	70212711	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334315	1	07334315	1
44	Electronic Expansion Valve SPF-18D88	07334193	1	07334193	1
45	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144156	1	04144156	1
49	4-Way Vavle	4300008201	1	4300008201	1
50	4-way Valve Fittings	430004005	1	430004005	1

No	Description	GMV-Rh71T/Na-K		GMV-Rh80T/Na-K	
		Product Code	CM501N0121	Product Code	CM501N0191
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302718	1	01302718	1
4	Left Side Plate	01302715	1	01302715	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302714	1	01302714	1
7	Bottom Foam	52012711	1	52012711	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN35B-1	15704102	1	15704102	1
12	Centrifugal Fan	10312705	1	10312705	1
13	Evaporator Connection	01072710	1	01072710	1
14	Cable-cross Loop	76513101	1	76513101	1
15	Evaporator Plate	01004641	1	01004641	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010027	1	33010027	1
28	Evaporator Support	01072715	2	01072715	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332702	1	01332702	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05230026	1	05230026	1
35	Right Side Plate	01302716	1	01302716	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252711	1	01252711	1
38	Bolt	70212711	4	70212711	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334315	1	07334315	1
44	Electronic Expansion Valve SPF-18D88	07334193	1	07334193	1
45	Magnet Coil for Electronic Expansion Valve	430001087	1	430001087	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144156	1	04144156	1
49	4-Way Vavle	4300008201	1	4300008201	1
50	4-way Valve Fittings	430004005	1	430004005	1

GMV-Rh90T/Na-K,GMV-Rh100T/Na-K,GMV-Rh112T/Na-K,GMV-Rh125T/Na-K Exploded Views and parts list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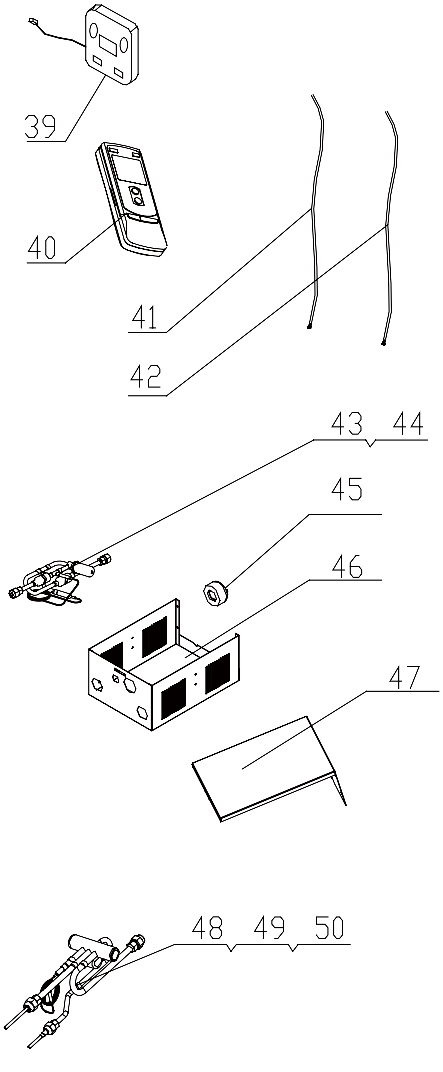
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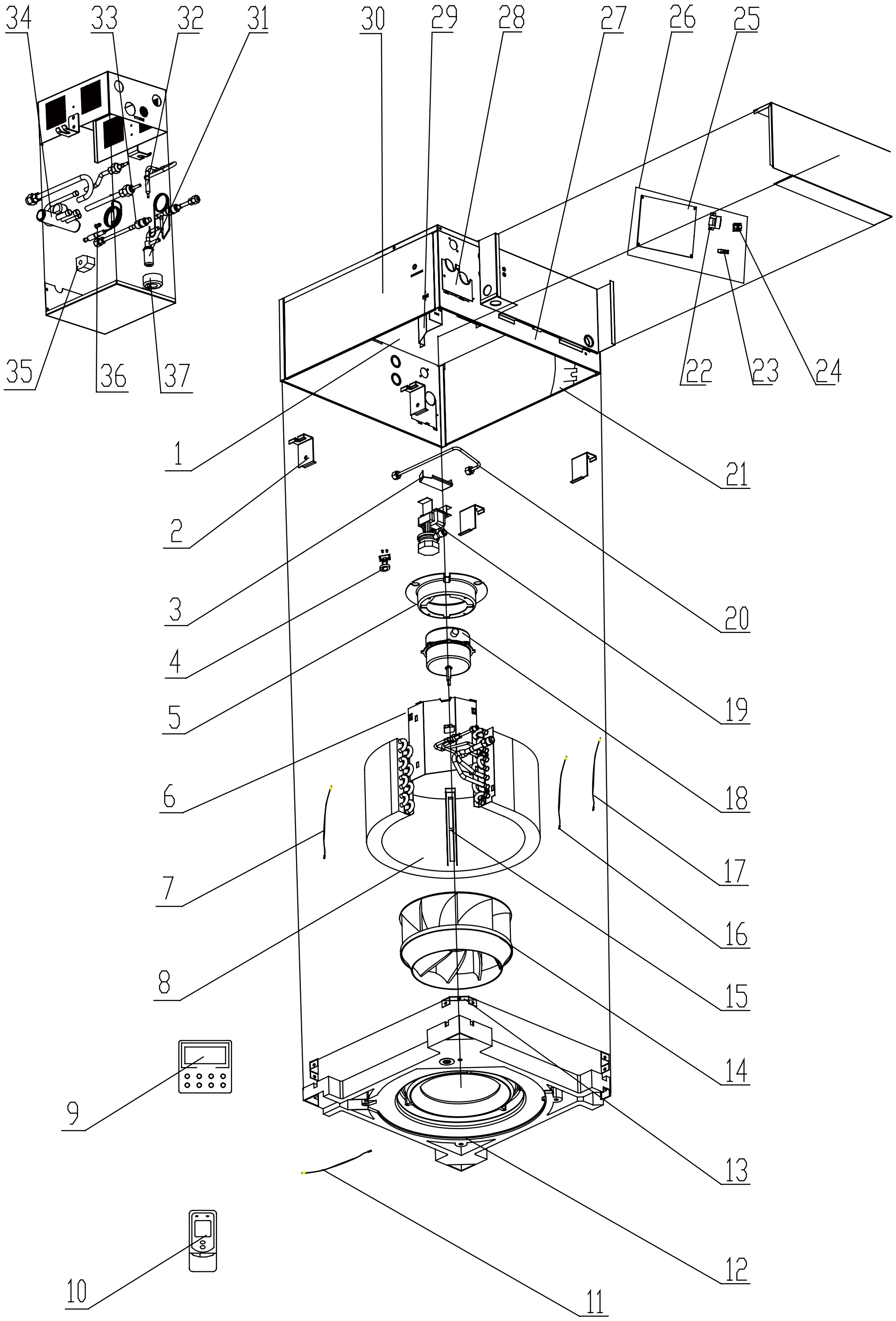
No	Description	GMV-Rh90T/Na-K		GMV-Rh100T/Na-K	
		Product Code	CM501N0201	Product Code	CM501N0211
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302713	1	01302713	1
4	Left Side Plate	01302711	1	01302711	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302709	1	01302709	1
7	Bottom Foam	52012717	1	52012717	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN60T-1	15704103	1	15704103	1
12	Centrifugal Fan	10310101	1	10310101	1
13	Evaporator Connection	01072733	1	01072733	1
14	Cable-cross Loop	76515202	2	76515202	2
15	Evaporator Plate	01024195	1	01024195	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372722	1	10372722	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010011	1	33010011	1
28	Evaporator Support	01072708	2	01072708	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332721	1	01332721	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05230026	1	05230026	1
35	Right Side Plate	01302712	1	01302712	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252711	1	01252711	1
38	Bolt	70212701	4	70212701	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334314	1	07334314	1
44	Electronic Expansile Valve	07334195	1	07334195	1
45	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144156	1	04144156	1
49	4-Way Vavle	4300008201	1	4300008201	1
50	4-way Valve Fittings	430004005	1	430004005	1

No	Description	GMV-Rh90T/Na-K		GMV-Rh100T/Na-K	
		Product Code	CM501N0201	Product Code	CM501N0211
		Part Code	Qty	Part Code	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302713	1	01302713	1
4	Left Side Plate	01302711	1	01302711	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302709	1	01302709	1
7	Bottom Foam	52012717	1	52012717	1
8	Motor Gasket	76712711	4	76712711	4
9	Bolt	70210051	4	70210051	4
10	Motor Fixer	01702701	1	01702701	1
11	Motor FN60T-1	15704103	1	15704103	1
12	Centrifugal Fan	10310101	1	10310101	1
13	Evaporator Connection	01072733	1	01072733	1
14	Cable-cross Loop	76515202	2	76515202	2
15	Evaporator Plate	01024195	1	01024195	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372722	1	10372722	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	2	71010102	2
22	Terminal Board	42011142	1	42011142	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main PCB	30226313	1	30226313	1
27	Capacitor	33010011	1	33010011	1
28	Evaporator Support	01072708	2	01072708	2
29	Nut with Washer M6	70310012	4	70310012	4
30	Pipe Pump PJV-1415	43130324	1	43130324	1
31	Pump Gasket	76712702	3	76712702	3
32	Pump Support	01332721	1	01332721	1
33	Water Level Switch	45010201	1	45010201	1
34	Drainage Pipe Pump	05230026	1	05230026	1
35	Right Side Plate	01302712	1	01302712	1
36	Cable-cross Loop	76512702	1	76512702	1
37	Pump Cover	01252711	1	01252711	1
38	Bolt	70212701	4	70212701	4
39	Display Board	30296309	1	30296309	1
40	Remote Controller	305125063	1	305125063	1
41	Signal Cable	400103953	1	400103953	1
42	Connecting Wire	40010232	1	40010232	1
43	Electric Expansion Valve Sub-Assy	07334314	1	07334314	1
44	Electronic Expansile Valve	07334195	1	07334195	1
45	Magnet Coil for Electronic Expansion Valve	43000110	1	43000110	1
46	Bottom Cover Plate	01264163P	1	01264163P	1
47	Upper Cover Plate	01264164P	1	01264164P	1
48	4-wayValveSub-Assy	04144156	1	04144156	1
49	4-Way Vavle	4300008201	1	4300008201	1
50	4-way Valve Fittings	430004005	1	430004005	1

GMV-Rh22T/NaA-K,GMV-Rh28T/NaA-K,GMV-Rh36T/NaA-K,GMV-Rh45T/NaA-K Exploded Views and parts list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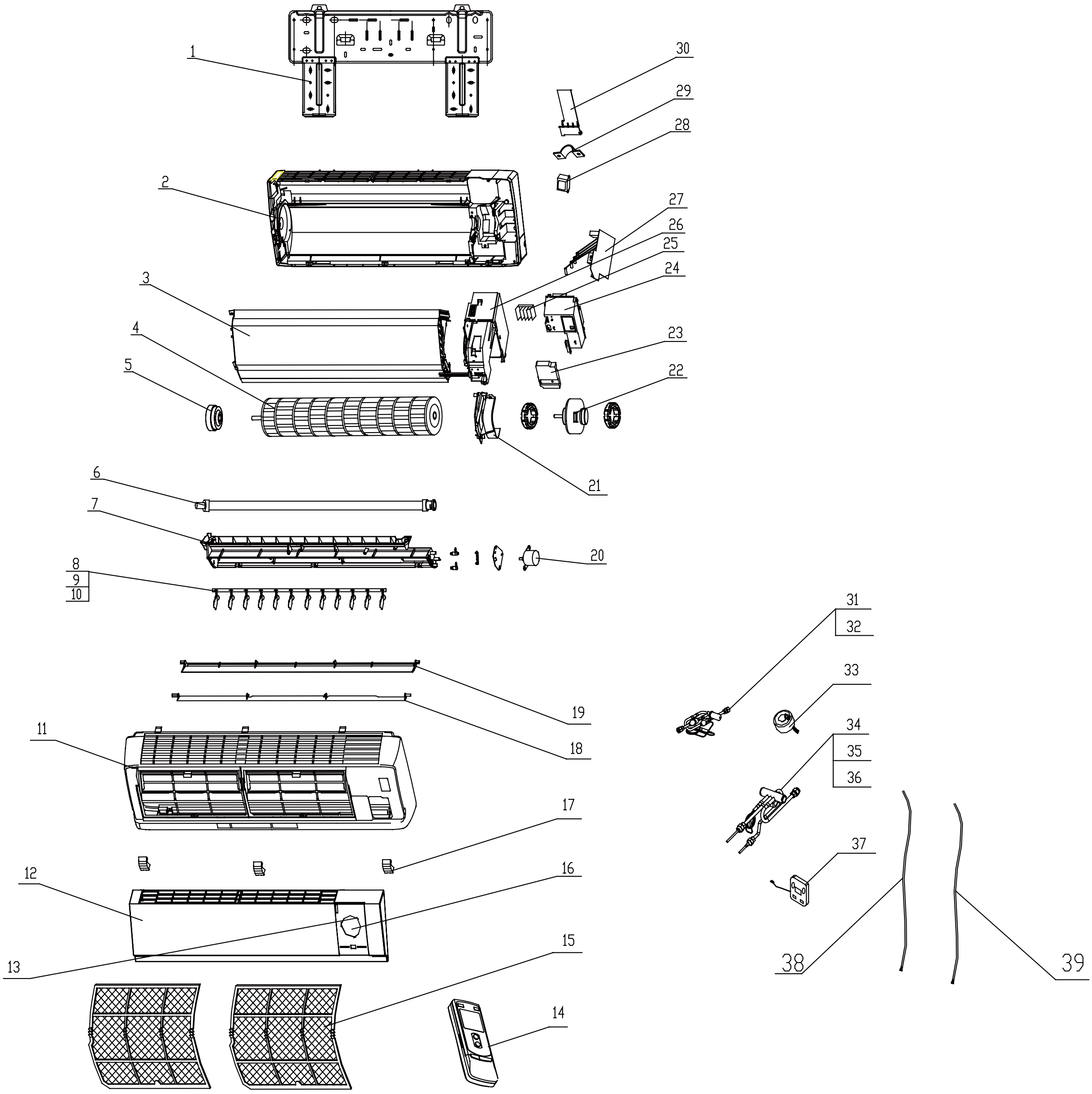
No	Description	Part Code	Part Code	Part Code	Part Code	Qty
		GMV-Rh22T/NaA-K	GMV-Rh28T/NaA-K	GMV-Rh36T/NaA-K	GMV-Rh45T/NaA-K	
		CM501N0260	CM501N0250	CM501N0240	CM50100230	
1	Seat Board Sub-Assy	01222712	01222712	01222712	01222712	1
2	Body Installing Support	01332705	01332705	01332705	01332705	4
3	Pump Support Assy	01332708	01332708	01332708	01332708	1
4	Water Level Switch	450127011	450127011	450127011	450127011	1
5	Motor Support	01702702	01702702	01702702	01702702	1
6	Evaporator Connection Board	01072713	01072713	01072713	01072713	1
7	Temperature Sensor	390001982G	390001982G	390001982G	390001982G	1
8	Evaporator Assy	01024194	01024194	01024200	01024200	1
9	Display Board	30296309	30296309	30296309	30296309	1
10	Remote Controller	305125063	305125063	305125063	305125063	1
11	Ambient Temperature Sensor	3900019813	3900019813	3900019813	3900019813	1
12	Water Tray Assy	20182704	20182704	20182704	20182704	1
13	Water Tray Support	01332706	01332706	01332706	01332706	4
14	Centrifugal Fan	10312702	10312702	10312702	10312702	1
15	Evaporator Support	01072714	01072714	01072714	01072714	1
16	Tube sensor	390001981G	390001981G	390001981G	390001981G	1
17	Tube sensor	390001983G	390001983G	390001983G	390001983G	1
18	Fan Motor	15704114	15704114	15704114	15704114	1
19	Water Pump	43130320	43130320	43130320	43130320	1
20	Pump Drainpipe	05232722	05232722	05232722	05232722	1
21	Pass WirePlate	01362701	01362701	01362701	01362701	1
22	Transformer	43110226	43110226	43110226	43110226	1
23	Capacitor	33010026	33010026	33010026	33010026	1
24	Terminal Board	42040254	42040254	42040254	42040254	1
25	Main Board	30226218	30226218	30226218	30226218	1
26	Electric Box Assy	02404633	02404633	02404633	02404633	1
27	Front Side Plate	01302741	01302741	01302741	01302741	1
28	Tube Exit Plate Assy	01382719	01382719	01382719	01382719	1
29	Right Baffle Assy	01362704	01362704	01362704	01362704	1
30	Right Side Plate Sub-Assy	01302743	01302743	01302743	01302743	2
31	Electronic Expansion Valve	07334191	07334191	07334191	07334191	1
32	One way Valve	07334200	07334200	07334200	07334200	1
33	Filter 2	07216221	07216221	07216221	07216221	2
34	4-Way Valve	430004032	430004032	430004032	430004032	1
35	Magnet Coil	4300040043	4300040043	4300040043	4300040043	1
36	Filter Sub-Assy	11128633	11128633	11128633	11128633	1
37	Electric Expand Valve Fitting	43000109	43000109	43000109	43000109	1

5) Wall mounted type indoor unit

GMV-Rh22G/Na-K,GMV-Rh28GT/Na-K Exploded Views and parts list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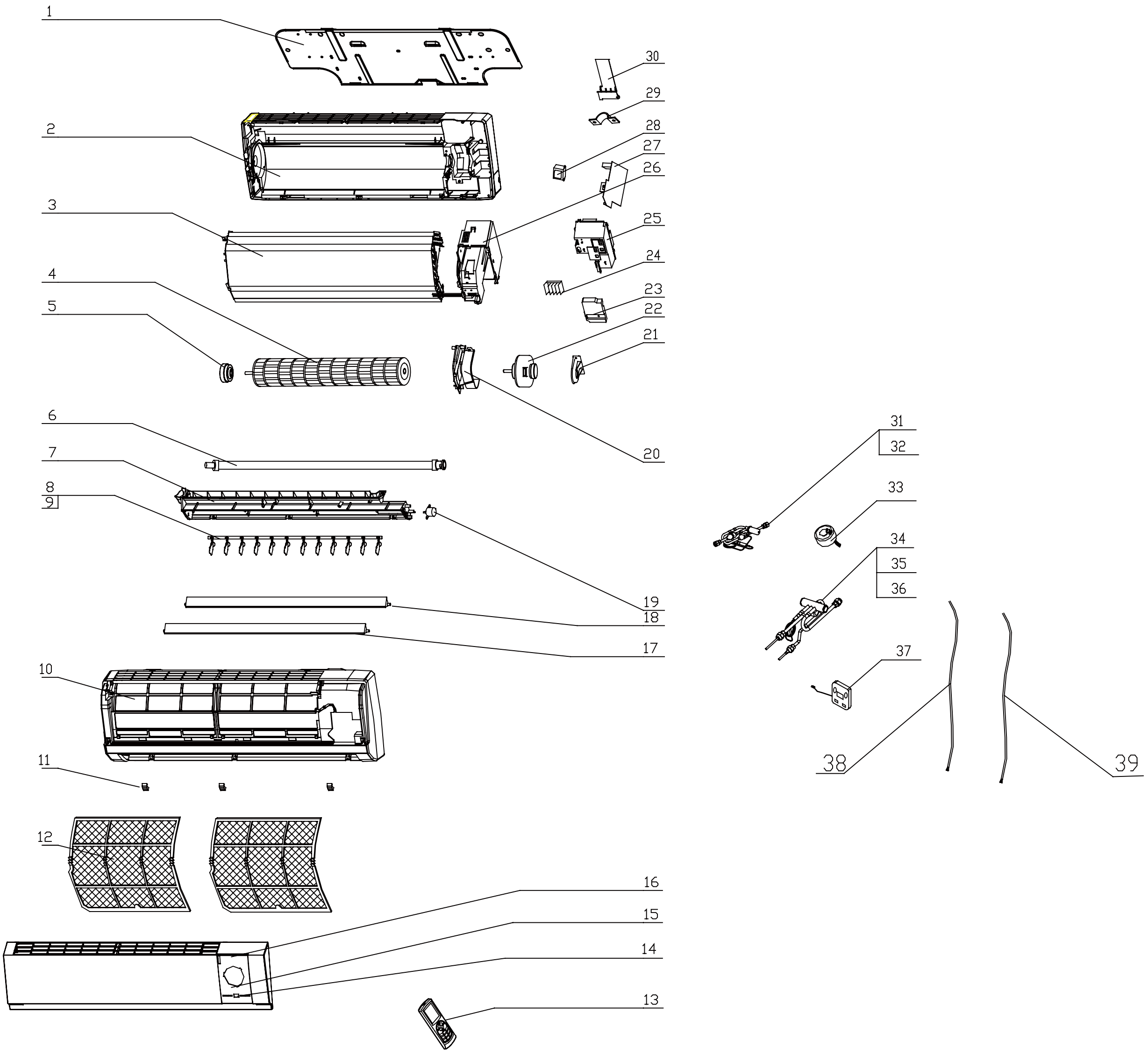
No	Description	GMV-Rh22G/Na-K	GMV-Rh28G/Na-K	Qty
		CM100N0090	CM100N0100	
		Part Code	Part Code	
1	Wall-Mounting Frame	01252220	01252220	1
2	Rear Case	2220232310	2220232310	1
3	Evaporator Assy	0100462801	0100462801	1
4	Cross Flow Fan	10352001	10352001	1
5	Fan Bearing	76512203	76512203	1
6	Drainage Pipe	0523001401	0523001401	1
7	Water Tray	20182027	20182027	1
8	Swing Louver	10512032	10512032	12
9	Swing Link 1	10582002	10582002	1
10	Swing Link 2	10582003	10582003	1
11	Front Case	200022107	200022107	1
12	Front Panel	200022092C	200022092C	1
13	Decorate Piece	68012019	68012019	1
14	Remote Controller Y512	305125063	305125063	1
15	Filter	11122002	11122002	2
16	Receiver Board	30545702	30545702	1
17	Screw Cover	242520062	242520062	3
18	Guide Louver	105120332	105120332	1
19	Guide Louver	105120342	105120342	1
20	Stepping Motor MP28VB	15012086	15012086	1
21	Motor Clamp	26112014	26112014	1
22	Motor FN14G	150121081	150121081	1
23	Electric Box Cover	20122082	20122082	1
24	Covering Plate	20112058S	20112058S	1
25	Terminal Board	42010266	42010266	1
26	Electric Box	20112057	20112057	1
27	Main PCB	30224101	30224101	1
28	Transformer 48X26F	43110226	43110226	1
29	Wire Clamp	71010103	71010103	1
30	Rear Clamp	24242001	24242001	1
31	EXV sub-assy	07334319	07334319	1
32	Electronic Expansile Valve	07334191	07334191	1
33	Magnet Coil for Electronic Expansion Valve	43000105	43000105	1
34	4-way Valve Sub-Assy	04144163	04144163	1
35	4-way Valve	430004032	430004032	1
36	4-way Valve Fittings	430004005	430004005	1
37	Display Board	30296309	30296309	1
38	Connecting Wire (communicate)	400103953	400103953	1
39	Connecting Wire	40010267	40010267	1

GMV-Rh36G/Na-K,GMV-Rh45GT/Na-K Exploded Views and parts list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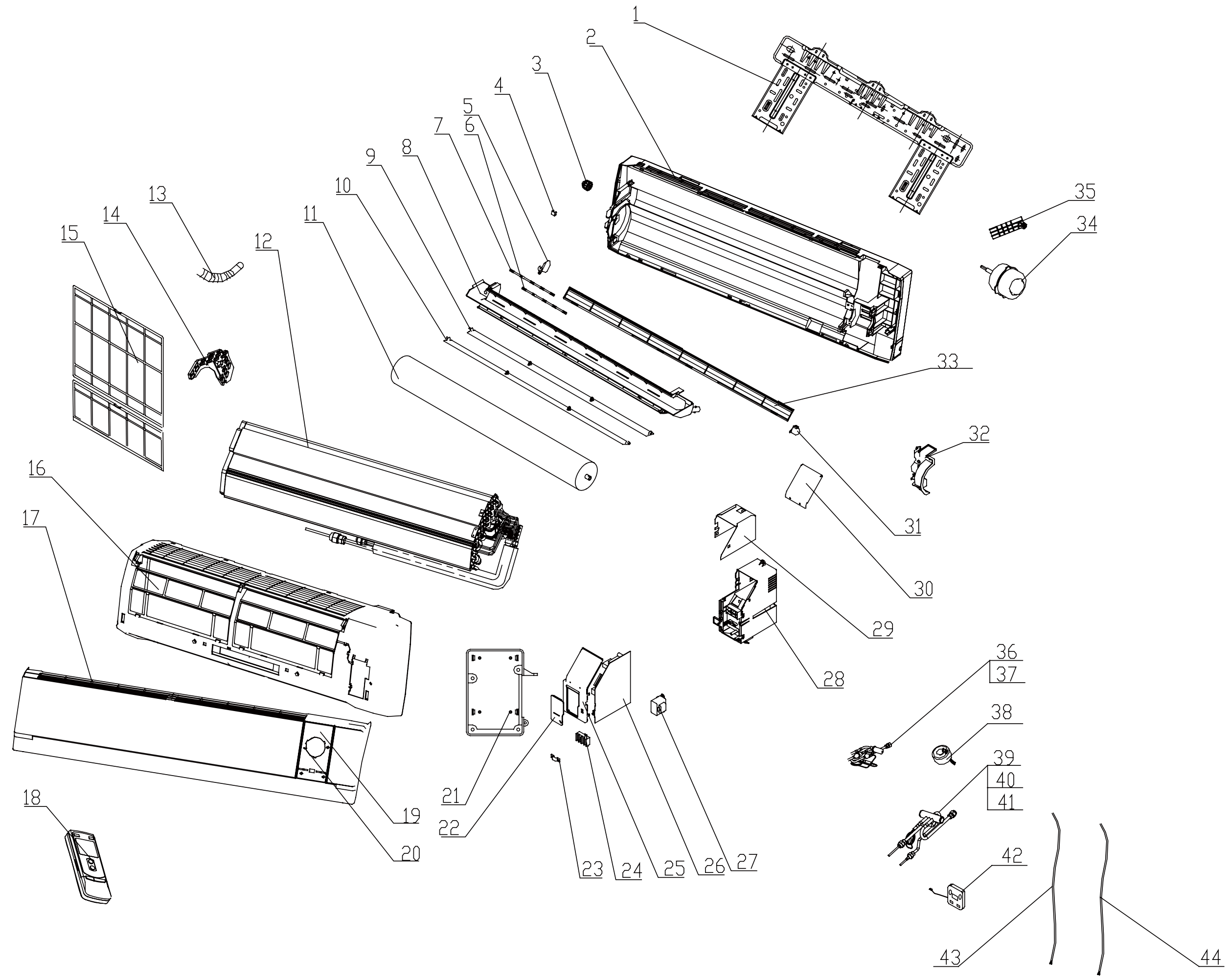
No	Description	GMV-Rh36G/Na-K	GMV-Rh45G/Na-K	Qty
		CM100N0110	CM100N0120	
		Part Code	Part Code	
1	Wall-Mounting Frame	01252384	01252384	1
2	Rear Case	222020503	222020503	1
3	Evaporator Assy	01004629	01004629	1
4	Cross Flow Fan	10352005	10352005	1
5	Fan Bearing	76712015	76712015	1
6	Drainage Pipe	0523001401	0523001401	1
7	Water Tray	201820303	201820303	1
8	Swing Louver	105120413	105120413	12
9	Swing Link	105824398	105824398	1
10	Front Case	200022958	200022958	1
11	Screw Cover	242520072	242520072	3
12	Filter	11122440	11122440	2
13	Remote Controller Y512	305125063	305125063	1
14	Receiver Board	30545552	30545552	1
15	Decorate Piece	68012019	68012019	1
16	Screw Cover	200022921	200022921	1
17	Guide Louver (down)	261120432	261120432	1
18	Guide Louver (up)	261120422	261120422	1
19	Stepping Motor	15212002	15212002	1
20	Right Motor Clamp	26112429	26112429	1
21	Motor FN14G	26152423	26152423	1
22	Motor FN22G	150120623	150120623	1
23	Electric Box Cover	20122081	20122081	1
24	Terminal Board	42010266	42010266	1
25	Covering Plate	20112060	20112060	1
26	Electric Box	20112059	20112059	1
27	Main PCB	30224101	30224101	1
28	Transformer	43110226	43110226	1
29	Wire Clamp	71010103	71010103	1
30	Rear Clamp	261124307	261124307	1
31	EXV sub-assy	07334319	07334319	1
32	Electronic Expansile Valve	07334191	07334191	1
33	Magnet Coil for Electronic Expansion Valve	43000105	43000105	1
34	4-way Valve Sub-Assy	04144157	04144157	1
35	4-way Valve	430004032	430004032	1
36	4-way Valve Fittings	430004005	430004005	1
37	Display Board	30296309	30296309	1
38	Connecting Wire (communicate)	400103953	400103953	1
39	Connecting Wire	40010267	40010267	1

GMV-Rh50G/Na-K,GMV-Rh56GT/Na-K Exploded Views and parts list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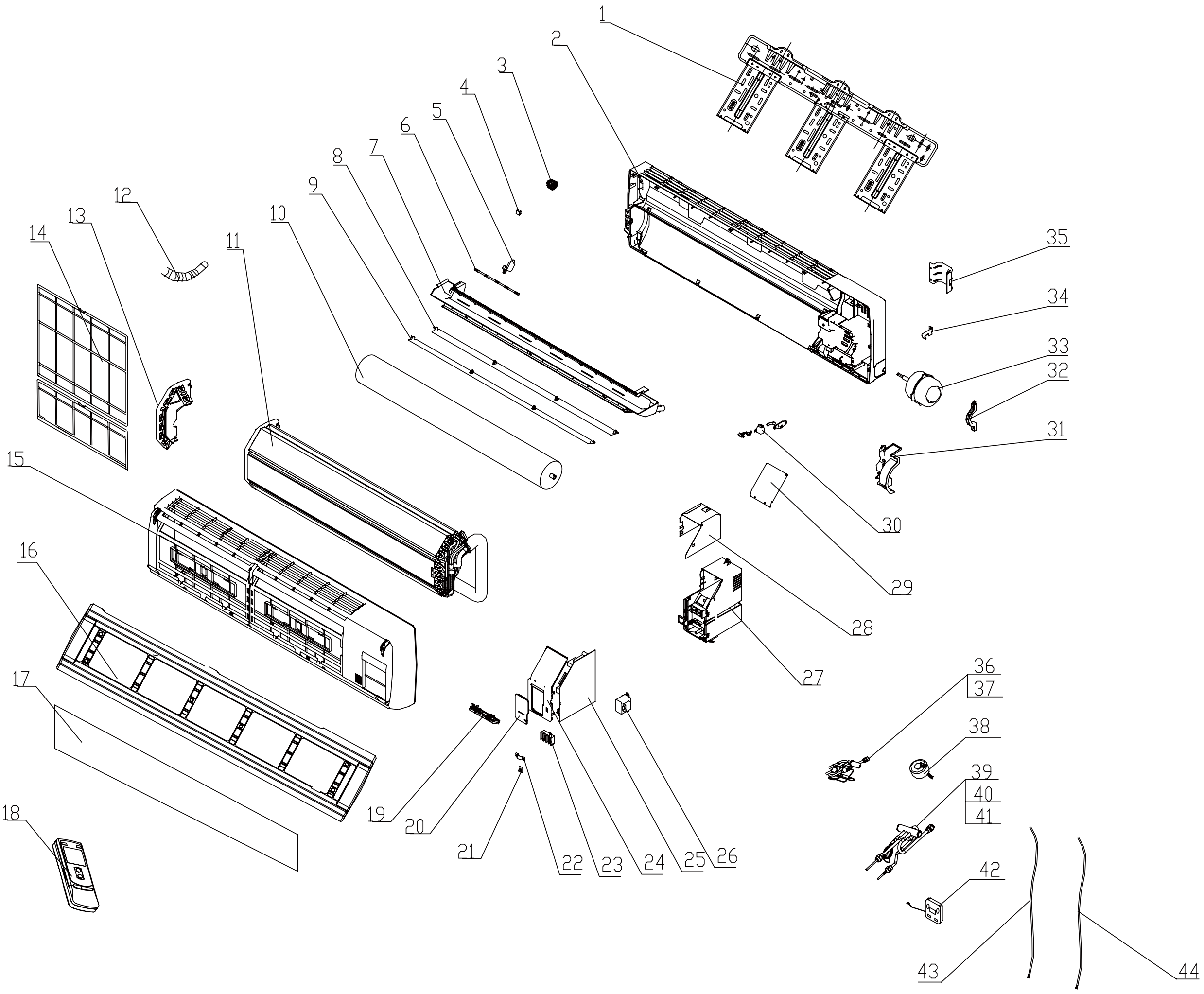
No	Description	GMV-Rh50G/Na-K	GMV-Rh56G/Na-K	Qty
		CM100N0130	CM100N0140	
		Part Code	Part Code	
1	Wall-Mounting Frame	01252004	01252004	1
2	Rear Case	22202329	22202329	1
3	O-Gasket of Cross Fan Bearing	76512203	76512203	1
4	Screw Cover	24252015	24252015	3
5	Swing Louver	10512429	10512429	11
6	Swing Link 1	10582057	10582057	1
7	Swing Link 2	10582058	10582058	1
8	Water Tray	20182057	20182057	1
9	Guide Louver (up)	10512085	10512085	1
10	Guide Louver (down)	10512086	10512086	1
11	Cross Flow Fan	10352022	10352022	1
12	Evaporator Assy	01024148	01024148	1
13	Drainage Pipe	0523001403	0523001403	1
14	Evaporator Support	24212067	24212067	1
15	Filter	11122048	11122048	2
16	Front Case	200028625	200028625	1
17	Front Panel	20002805	20002805	1
18	Remote Controller Y512	305125063	305125063	1
19	Display Board	30545552	30545552	1
20	Magic Mirror	68012019	68012019	1
21	Displaying Light Board	22432071	22432071	1
22	Electric Box Cover 1	20112019	20112019	1
23	Wire Clamp	71010103	71010103	1
24	Terminal Board	42010266	42010266	1
25	Electric Box Cover 2	20112020	20112020	1
26	Main PCB Z6K251B	30224103	30224103	1
27	Transformer 57X25C	43110237	43110237	1
28	Electric Box	20112018	20112018	1
29	Lower Shield of Electric Box	01592037	01592037	1
30	Upper Shield of Electric Box	01592038	01592038	1
31	Stepping Motor	15212117	15212117	1
32	Motor Clamp	26112095	26112095	1
33	Helicoid tongue	26252009	26252009	1
34	Motor FN20X	150120671	150120671	1
35	Pipe Clamp	26112096	26112096	1
36	EXV sub-assy	07334319	07334319	1
37	Electronic Expansile Valve	07334191	07334191	1
38	Magnet Coil for Electronic Expansion Valve	43000105	43000105	1
39	4-way Valve Sub-Assy	04144157	04144157	1
40	4-way Valve	430004032	430004032	1
41	4-way Valve Fittings	430004005	430004005	1
42	Display Board	30296309	30296309	1
43	Connecting Wire (communicate)	400103953	400103953	1
44	Connecting Wire	40010267		1

GMV-Rh71G/Na-K,GMV-Rh80GT/Na-K Exploded Views and parts list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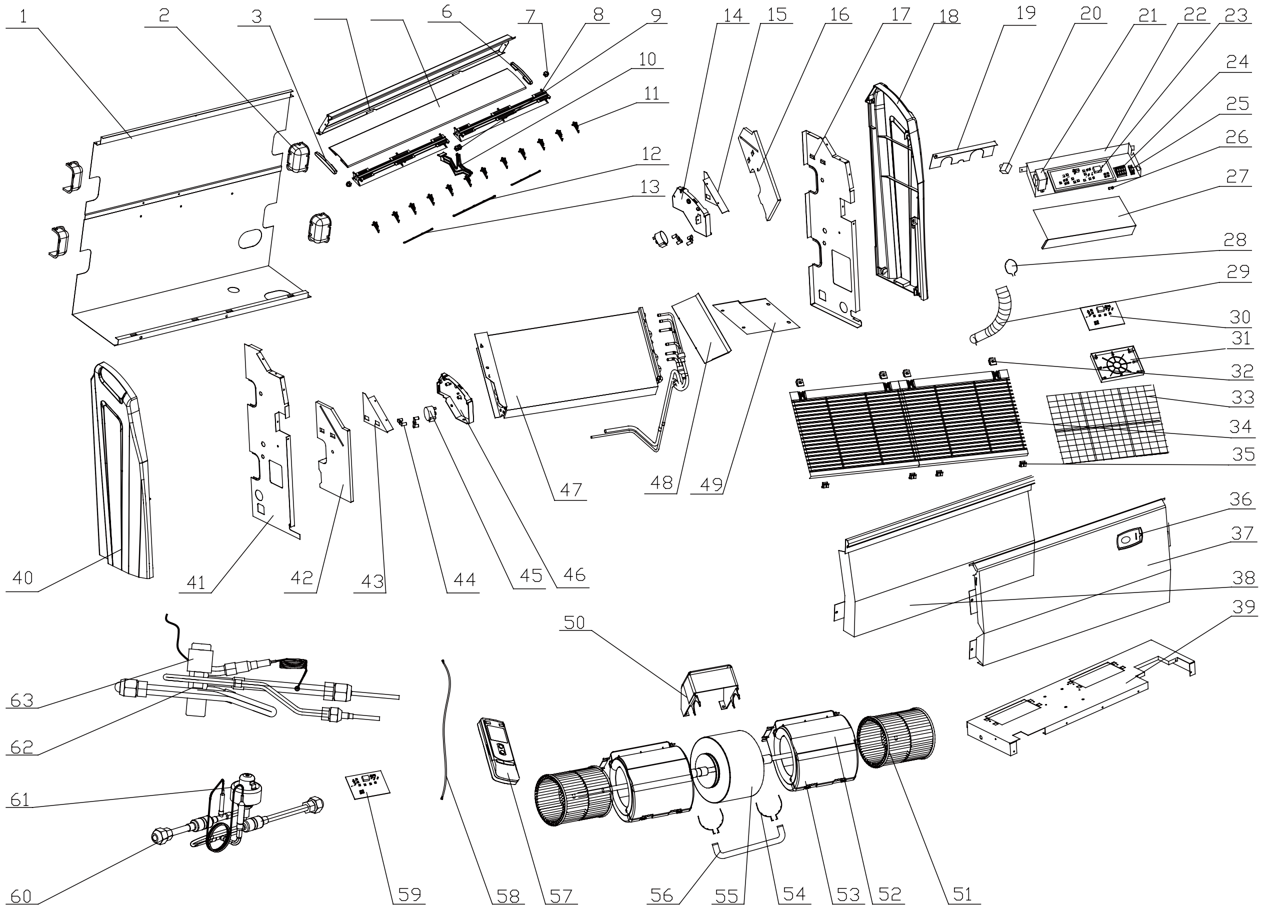
No	Description	GMV-Rh71G/Na-K	GMV-Rh80G/Na-K	Qty
		CM100N0150	CM100N0160	
		Part Code	Part Code	
1	Wall-Mounting Frame	01252398	01252398	1
2	Rear Case	22202091	22202091	1
3	O-Gasket of Cross Fan Bearing	76512203	76512203	1
4	Screw Cover	242520053	242520053	3
5	Swing Louver	10512110	10512110	15
6	Swing Link	10582040	10582040	3
7	Water Tray	20182043	20182043	1
8	Guide Louver (up)	10512062	10512062	1
9	Guide Louver (down)	10512063	10512063	1
10	Cross Flow Fan	10352420	10352420	1
11	Evaporator Assy	0102411202	0102411202	1
12	Drainage Pipe	0523001404	0523001404	1
13	Evaporator Supportb (left)	24212041	24212041	1
14	Filter	11122051	11122051	1
15	Front Case	2000237001	2000237001	1
16	Front Panel	20002698	20002698	1
17	Front Panel A	22432258	22432258	1
18	Remote Controller Y512	305125063	305125063	1
19	Receiver Board JD	30046093	30046093	1
20	Electric Box Cover	20102252	20102252	1
21	Switch Lever	10582007	10582007	1
22	Wire Clamp	71010103	71010103	1
23	Terminal Board T4B3A	42011233	42011233	1
24	Electric Box Cover	201022513	201022513	1
25	Main PCB Z64251A	30224105	30224105	1
26	Transformer 48X26G	43110233	43110233	1
27	Electric Box	20102250	20102250	1
28	Lower Shield of Electric Box	01592034	01592034	1
29	Upper Shield of Electric Box	01592033	01592033	1
30	Stepping Motor MP24GA	15212102	15212102	1
31	Evaporator Support (rihgt)	24212042	24212042	1
32	Motor Clamp	26112069	26112069	1
33	Motor FN26D	150121053	150121053	1
34	Fixer(evaporator)	02112009	02112009	1
35	Pipe Clamp	26112071	26112071	1
36	EXV sub-assy	07334315	07334315	1
37	Electronic Expansile Valve	07334193	07334193	1
38	Magnet Coil for Electronic Expansion Valve	43000105	43000105	1
39	4-way Valve Sub-Assy	04144156	04144156	1
40	4-way Valve	4300008201	4300008201	1
41	4-way Valve Fittings	430004005	430004005	1
42	Display Board	30296309	30296309	1
43	Connecting Wire (communicate)	400103953	400103953	1
44	Connecting Wire	40010267	40010267	1

6) Floor ceiling type indoor unit

GMV-Rh28Zd/Na-K,GMV-Rh36Zd /Na-K,GMV-Rh50Zd /Na-K Exploded Views and parts list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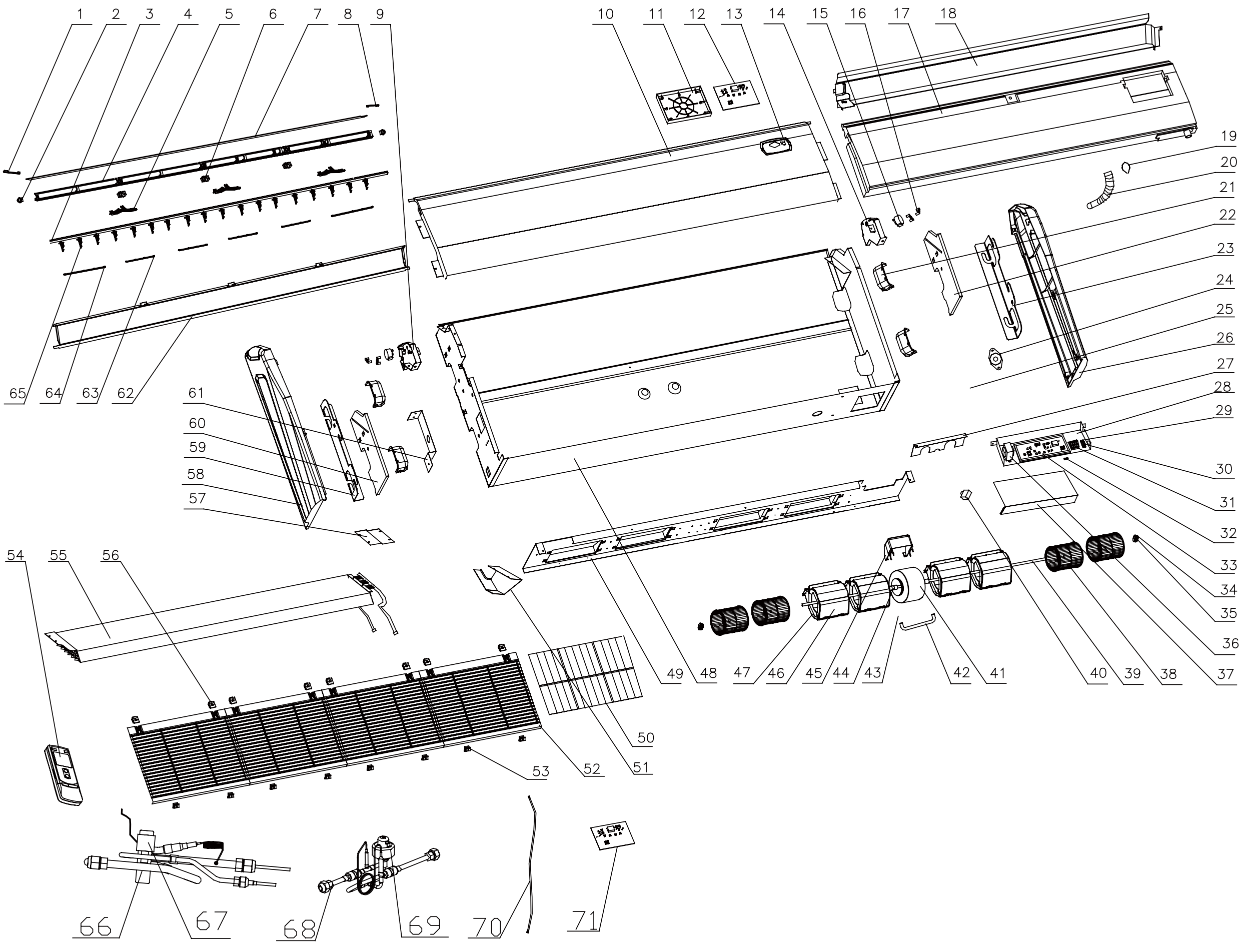
No	Description	GMV-Rh28Zd/Na-K	GMV-Rh36Zd/Na-K	GMV-Rh50Zd/Na-K	Qty
		CM600N0100	CM600N0110	CM600N0120	
		Part Code	Part Code	Part Code	
1	Rear Side Plate	01302013	01302013	01302013	1
2	Handle	26232001	26232001	26232001	4
3	Left Decoration Plate	261124152	261124152	261124152	1
4	Rear Side Plate of Air Outlet	0130201501	0130201501	0130201501	1
5	Louver	1051953202	1051953202	1051953202	1
6	Right Decoration Plate	261124162	261124162	261124162	1
7	Shaft of Louver II	10512026	10512026	10512026	2
8	Louver Support	24212019	24212019	24212019	2
9	Shaft of Louver I	10512025	10512025	10512025	1
10	Louver Fixer	24212018	24212018	24212018	1
11	Swing Louver	10512027	10512027	10512027	12
12	Connecting Lever	10582009	10582009	10582009	1
13	Connecting Lever	10582008	10582008	10582008	2
14	Right Swing Motor Fixer	26152006	26152006	26152006	1
15	Right Fixing Plate of Evaporator	01072411	01072411	01072411	1

16	Right Side Foam sub-assy	12312404	12312404	12312404	1
17	Right Fixing Plate	01332404	01332404	01332404	1
18	Right Decoration Panel	26112027	26112027	26112027	1
19	Pipe Clamp Plate	01072437	01072437	01072437	1
20	Capacitor 1uF/500V	33010089	33010089	33010089	1
21	Transformer 57X25C	43110237	43110237	43110237	1
22	Electric Box	01402407	01402407	01402407	1
23	Main PCB Z69251A	30224104	30224104	30224104	1
24	Terminal Board	42011159	42011159	42011159	1
25	Wire Base	24253001	24253001	24253001	1
26	Fuse 5A 250VAC	46010013	46010013	46010013	1
27	Cover of Electric Box	01412408	01412408	01412408	1
28	Pipe Clip	70812001	70812001	70812001	1
29	Drainage Pipe	05235433	05235433	05235433	1
30	Display Board 5T52	30545654	30545654	30545654	1
31	Electric Box	20102138	20102138	20102138	1
32	Front Grill Clip 1	26252002	26252002	26252002	4
33	Filter	11122013	11122013	11122013	2
34	Front Grill	22412010	22412010	22412010	2
35	Front Grill Clip 2	26252003	26252003	26252003	4
36	Front Panel	01544106	01544106	01544106	1
37	Front Panel	01532001P	01532001P	01532001P	1
38	Water Tray Panel	01272205P	01272205P	01272205P	1
39	Motor Support	01709532	01709532	01709532	1
40	Left Decoration Panel	26112028	26112028	26112028	1
41	Left Fixing Plate	01332405	01332405	01332405	1
42	Left Side Foam sub-assy	12312403	12312403	12312403	1
43	Left Fixing Plate of Evaporator	01072410	01072410	01072410	1
44	Motor Clamp	26112026	26112026	26112026	4
45	Step Motor MP35CA	15212402	15212402	15212402	2
46	Left Swing Motor Fixer	26152005	26152005	26152005	1
47	Evaporator Assy	01024134	01024134	01024134	1
48	Water Lead Panel	01362001	01362001	01362001	1
49	Cover of Evaporator	01072409	01072409	01072409	1
50	Fixed Mount	01708763	01708763	01708763	1
51	Centrifugal Fan	10312401	10312401	10312401	2
52	Rear Snail Shell	22202032	22202032	22202032	2
53	Front Snail Shell	22202031	22202031	22202031	2
54	Bar Clasp	70819522	70819522	70819522	4
55	Hoop	70819521	70819521	70819521	1
56	Motor PG10H	15707302	15707302	15707302	1
57	Remote Controller	305125063	305125063	305125063	1
58	Signal Cable	400103953	400103953	400103953	1
59	Display Board Z63351F	30296309	30296309	30296309	1
60	EXV sub-assy	07334319	07334319	07334319	1
61	Magnet Coil for EXV	430001087	430001087	430001087	1
62	4-way Valve Sub-Assy	04144163	04144163	04144163	1
63	4-way Valve Accessary	430004009	430004009	430004009	1

GMV-Rh71Zd/Na-K Exploded Views and parts list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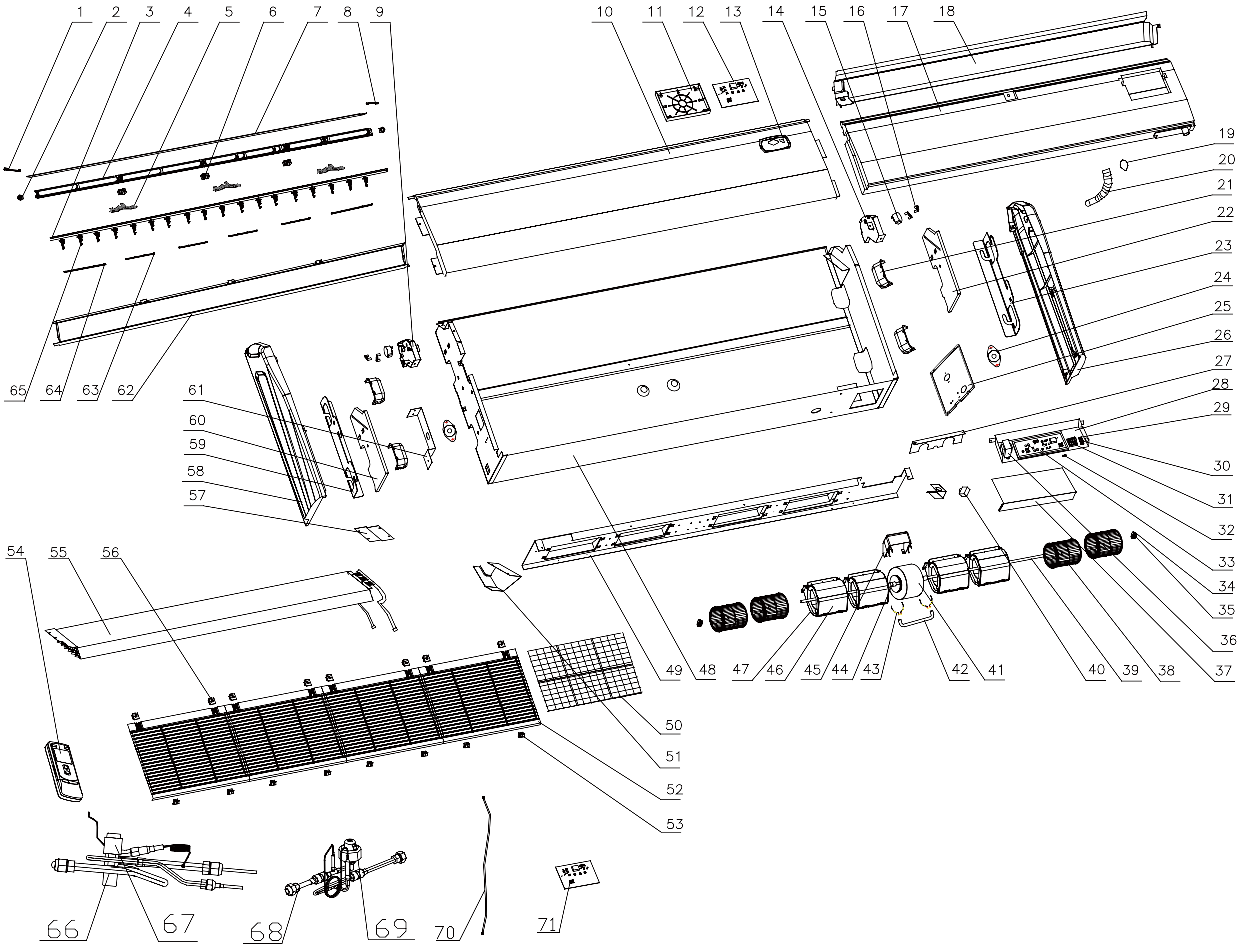
No	Description	Part Code	Qty
		GMV-Rh71Zd/Na-K	
	Product Code	CM600N0130	
1	Left Decoration Plate	261124172	1
2	Shaft of Louver I	10512025	2
3	Swing Louver Fixer sub-assy	013324232	1
4	Louver Support	24212020	3
5	Louver Fixer	24222016	2
6	Louver	105124042	1
7	Shaft of Louver II	10512026	2
8	Right Decoration Plate	261124212	1
9	Left Swing Motor Fixer	26152007	1
10	Front Panel Sub-Assy	01532414	1
11	Display Box	20102138	1
12	Display Board 5T52	30545654	1
13	Front Panel	01544106	1
14	Right Swing Motor Fixer	26152008	1
15	Step Motor MP35CA	15212402	2

16	Motor Clamp	26112026	4
17	Water Tray	01272412	1
18	Auxiliary Water Tray	01272413	1
19	Pipe Clip	70812001	1
20	Drainage Pipe	05235433	1
21	Handle	26232001	4
22	Right Side Foam sub-assy	12312407	1
23	Right Fixing Palte	01332404	1
24	Support of Motor Bearing	01792408	2
25	Fixer of Motor Support	01792409	1
26	Right Decoration Panel	26112033	1
27	Pipe Clamp	01072424	1
28	Electric Box	01402407	1
29	Wire Base	24253001	1
30	Wire Clamp	24253002	1
31	Terminal Board	42011159	1
32	Fuse 5A 250VAC	46010013	1
33	Main Board Z69251A	30224104	1
34	Ring of Bearing	76512404	2
35	Fan Bearing	76512210	2
36	Transformer 57X25C	43110237	1
37	Cover of Electric Box	01412408	1
38	Centrifugal Fan	10312401	4
39	Rotary Axis	73012401	2
40	Capacitor CBB61 3uF/450	33010027	1
41	Motor FN100A	15012406	1
42	Motor Fixer	01722409	1
43	Motor Clamp	01702405	4
44	Axes Connector	73012403	2
45	Motor Fixing Plate	01332426	1
46	Front Snail Shell	22202031	4
47	Rear Snail Shell	22202032	4
48	Rear Side Plate	01302429	1
49	Motor Support	01702410	1
50	Filter	11122012	2
51	Water Lead Plate	01362401	1
52	Front Grill	22412011	2
53	Front Grill Clip 2	26252003	4
54	Remote Controller	305125063	1
55	Evaporator Assy	01024123	1
56	Front Grill Clip 1	26252002	4
57	Cover of Evaporator	01072417	1
58	Left Decoration Panel	26112032	1
59	Left Fixing Plate	01332405	1
60	Left Side Foam sub-assy	12312406	1
61	Bearing Fixing Plate	01332407	1
62	Rear Side Plate of Air Outlet	01302405	1
63	Connecting Lever	10582008	3
64	Connecting Lever	10582009	2
65	Air Louver	10512028	22
66	4-way Valve Sub-Assy	04144156	1
67	4-way Valve Accessary	430004009	1
68	EXV sub-assy	07334315	1
69	Magnet Coil for EXV	430001087	1
70	Signal Cable	400103953	1
71	Display Board Z63351F	30296309	1

GMV-Rh90Zd/Na-K,GMV-Rh112Zd/Na-K,GMV-Rh125Zd/Na-K Exploded Views and parts list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No	Description	GMV-Rh90Zd/Na-K	GMV-Rh112Zd/Na-K	GMV-Rh125Zd/Na-K	Qty
		CM600N0090	CM600N0140	CM600N0150	
		Part Code	Part Code	Part Code	
1	Left Decoration Plate	261124152	261124152	261124152	1
2	Shaft of Louver I	10512025	10512025	10512025	3
3	Swing Louver Fixer sub-assy	0133241802	0133241802	0133241802	1
4	Louver Support	24212019	24212019	24212019	4
5	Louver Fixer	24212018	24212018	24212018	3
6	Shaft of Louver II	10512026	10512026	10512026	2
7	Louver	105124082	105124082	105124082	1
8	Right Decoration Plate	261124162	261124162	261124162	1
9	Left Swing Motor Fixer	26152005	26152005	26152005	1
10	Front Panel	01532413	01532413	01532413	1
11	Display Box	20102138	20102138	20102138	1
12	Display Board 5T52	30545654	30545654	30545654	1
13	Front Panel	01544106	01544106	01544106	1
14	Right Swing Motor Fixer	26152006	26152006	26152006	1
15	Step Motor MP35CA	15212402	15212402	15212402	2

16	Motor Clamp	26112026	26112026	26112026	4
17	Water Tray Sub-Assy	0127240802	0127240802	0127240802	1
18	Auxiliary Water Tray	01272409	01272409	01272409	1
19	Pipe Clip	70812001	70812001	70812001	1
20	Drainage Pipe	05235433	05235433	05235433	1
21	Handle	26232001	26232001	26232001	4
22	Right Side Foam sub-assy	12312404	12312404	12312404	1
23	Right Fixing Palte	01332404	01332404	01332404	1
24	Support of Motor Bearing	01792408	01792408	01792408	2
25	Fixer of Motor Support	01792407	01792407	01792407	1
26	Right Decoration Panel	26112027	26112027	26112027	1
27	Pipe Clamp	01072425	01072425	01072425	1
28	Electric Box	01402407	01402407	01402407	1
29	Wire Base	24253001	24253001	24253001	1
30	Wire Clamp	24253002	24253002	24253002	1
31	Terminal Board	42011159	42011159	42011159	1
32	Fuse 5A 250VAC	46010013	46010013	46010013	1
33	Main PCB Z69251A	30224104	30224104	30224104	1
34	Ring of Bearing	76512404	76512404	76512404	2
35	Fan Bearing	76512210	76512210	76512210	1
36	Transformer 57×25C	43110237	43110237	43110237	1
37	Cover of Electric Box	01412408	01412408	01412408	1
38	Centrifugal Fan	10319051	10319051	10319051	4
39	Rotary Axis	73012402	73012402	73012402	2
40	Capacitor CBB61 5uF/450	33010064	33010064	33010064	1
41	Motor FN150A	15012405	15012405	15012405	1
42	Motor Fixer	01722410	01722410	01722410	1
43	Motor Clamp	01702405	01702405	01702405	4
44	Axes Connector	73012403	73012403	73012403	2
45	Motor Fixing Plate	01332425	01332425	01332425	1
46	Front Snail Shell	22202030	22202030	22202030	4
47	Rear Snail Shell	22202029	22202029	22202029	4
48	Rear Side Plate	01302431	01302431	01302431	1
49	Motor Support	01702411	01702411	01702411	1
50	Filter	11122013	11122013	11122013	1
51	Water Lead Plate	01362407	01362407	01362407	1
52	Front Grill	22412010	22412010	22412010	4
53	Front Grill Clip 2	26252003	26252003	26252003	8
54	Remote Controller	305125063	305125063	305125063	1
55	Evaporator Assy	01024122	01024122	01024122	1
56	Front Grill Clip 1	26252002	26252002	26252002	8
57	Cover of Evaporator	01072409	01072409	01072409	1
58	Left Decoration Panel	26112028	26112028	26112028	1
59	Left Fixing Plate	01332405	01332405	01332405	1
60	Left Side Foam sub-assy	12312403	12312403	12312403	1
61	Bearing Fixing Plate	01332406	01332406	01332406	1
62	Rear Side Plate of Air Outlet	01302416	01302416	01302416	1
63	Connecting Lever	10582008	10582008	10582008	2
64	Connecting Lever	10582009	10582009	10582009	4
65	Swing Louver	10512027	10512027	10512027	26
66	4-way Valve Sub-Assy	04144156	04144156	04144156	1
67	4-way Valve Accessary	430004009	430004009	430004009	1
68	EXV sub-assy	07334314	07334314	07334314	1
69	Magnet Coil for EXV	43000110	43000110	43000110	1
70	Signal Cable	400103953	400103953	400103953	1
71	Display Board Z63351F	30296309	30296309	30296309	1

Add: West Jinji Rd, Qianshan, Zhuhai 519070, Guangdong, China
Tel: (+86-756) 8522218 Fax: (+86-756) 8669426
Email: gree@gree.com.cn
http://www.gree.com

For continuous improvement in the products, Gree reserves the right to modify the product specification and appearance in this manual without notice and without incurring any obligations.

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